



**University of  
Nottingham**

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**ORGANISATIONAL INTELLIGENCE AND  
DIGITAL GOVERNMENT SERVICE QUALITY:  
THE MEDIATING ROLE OF OCCUPATIONAL STRESS AMONG  
MALAYSIAN SERVICE PROVIDERS**

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## **ABSTRACT**

The need to evolve and transform public service has led the public to re-think its approach, and to use technological tools to improve access, efficiency and satisfaction of users. The same scenario has also been observed in the Malaysian public sector, as to how the industrial revolution and COVID-19 pandemic have forcibly led to a greater emphasis on digitalisation initiatives. Today, with more than 50% of Malaysian public services available online (end-to-end), digital service quality is to be given more emphasis, as it is the most important determinant in ensuring user satisfaction. Essentially this study seeks to broaden the knowledge of digital services quality in the public sector, due to dissimilarities with the context of the private sector. Additionally, service providers' perspectives such as back-office management-related strategies have not been examined to a similar extent as the customers' standpoint. It is also important to note that the role of employee well-being has received very little attention in understanding its importance to service delivery performance. Following this, the study proposed four research objectives to gain a better understanding on the mediating role of occupational stress in addressing the missing link between organisational intelligence (OI) traits, and digital government service quality.

By employing multistage cluster sampling, a total of 394 completed survey responses comprising 4 clusters, 30 federal agencies, and 143 digital services were obtained for analysis. Next, all-inclusive strategies for this study were proposed based on the triangulation approach by incorporating a) mediation analysis; b) IPMA approach and c) Tree-Map chart (participants' feedback) and d) experts' and practitioners' insights. In principle, OI traits collectively demonstrate a significant direct effect on occupational stress and an indirect effect on digital service quality. Hence, this study proposes areas that require greater attention in sustaining the service quality, particularly the 'Appetite for Change and Knowledge Deployment', 'Alignment and Congruence', 'Shared Fate' and 'Heart'. Considering the significance of the 'occupational stress' factor in the proposed model, this study also presents some practical recommendations in terms of organisation-focused interventions, particularly on the 'Leadership', 'Alignment and Congruence', and 'Heart' to manage occupational stress. At the same time, individual-focused interventions such as training and job crafting are proposed in ensuring the psychological well-being of the service providers. This study hopes that these recommendations will serve as guidance to the Malaysian public sector in sustaining its digital government service performance in the long run.

## RESEARCH OUTPUT

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## **CHAPTER 1: INTRODUCTION**

This chapter gives an overview of this study by introducing the digital government services landscape in the global sphere, followed by the public sector domain at the global and Malaysian spectrum. Next, this study incorporates the role of technological and sociological elements in the performance of digital government services. Following this, the problem statement of this study is presented, which leads to the formulation of research questions and objectives. Lastly, this chapter discusses some potential contributions that this study may contribute in terms of theoretical, methodological, and practical perspectives. At the end of the chapter, definitions of the key terminologies used in this study are explained along with the organisation of chapters for the entire thesis.

### **1.1 Organisational Sustainability from Technological and Social Perspectives**

The era of digitalisation has forced organisations worldwide to be agile, smart, and fast as well as to revolutionise the development of their product and services (Kotorov, 2016; Trischler and Trischler, 2022). Hence, this has significantly influenced the service management domain, as the accessibility and availability of services demonstrated exponential growth worldwide (Buhalis et al., 2019). As the rivalry in service industries is rising and becoming more complex, the quality of their service has become the key differentiator in ensuring their services are more competitive than their competitors' (Najjar, 2019).

In relating service quality to organisational determinants, Wilensky (1967) indicated that there were four fundamental problems in complex organisations namely, goal setting, control, innovation, and lastly intelligence. Interestingly, this idea of organisational sociology is still relevant today, despite all the changes and transformations brought about by the industrial revolution (Smelser, 2015). In other words, the alignment of organisational competencies and resources, along with top management commitment and culture is necessary in ensuring that service delivery is efficient and stays relevant (Hilton and Sohal, 2012; Stenvall and Virtanen, 2017). In the similar vein, the role of new management approaches such as organisational intelligence (OI) is indeed significant, as it emphasises the importance of information and data to aid the decision-making process (Cohen and Kodorov, 2016). Nevertheless, an intelligent

organisation is beyond the idea of recruiting the smartest people and providing them with the most advanced computer tools and infrastructure (Veryard, 2018). Specifically, organisations need the right mixture of people with various intelligence who are aware of environmental change, able to respond quickly to the problem, willing to learn from experiences and possess a limitless capacity for innovation (Veryard, 2018).

Heightened demand from users and stakeholders for better, cheaper, and faster services have indeed forced organisations to accomplish equal or more output with minimal time, effort and costs. As Fuller (1973) put it, the ability to do more with less via the advancement of technology is termed ‘ephemeralisation’. In fact, factors such as unceasing technological development, increasing demand from stakeholders as well as amplifying the use of participatory management and computerisation have been identified as contributing factors to occupational stress (Guest, 2017; International Labour Organisation (ILO), 2021; Myers, 2000). As a result, this will lead to organisational problems such as less productivity and declined performance including in Information and Communication Technology (ICT) related industries (Beyza and Evenstad, 2018). In other words, when employees’ performance is not at their best, the quality of the decision made and services provided will be disputed (Kelloway and Myers, 2019).

Hence, multi-perspective views involving capitalisation of the people’s brainpower, continuous learning process, and upgrading of skills and knowledge, along with the utilisation of technological tools and prioritisation of employees’ well-being are ultimate panaceas for delivering quality services and ensuring organisations' sustainability.

## **1.2 Transforming the Public Organisations via Digitalisation Initiatives**

Similar to the private organisation’s scenario, the complexity of the public service operating environment is becoming more apparent too. Unlike private organisations, public organisations deal with a variety of stakeholders including the citizen, businesses, non-governmental organisations, and government agencies (Boyne, 2002). Besides, the unforeseen impact brought along by the digital revolution and global pandemic requires public organisations to rethink and learn how to fit into their environment and survive. Ultimately, the need to evolve

and transform their service delivery has necessitated organisations around the world, including the public sector to rethink their approach and leverage technological tools.

Today, the old-fashioned government services delivered through conventional face-to-face interactions and physical forms are being either complemented or replaced with digital services delivered via alternative platforms such as websites, kiosks, interactive voice response, and mobile (Klay, 2003; Wong, 2019). In fact, the importance of digitalising government service delivery and modernising public administration are becoming increasingly important, particularly amid the coronavirus disease (COVID-19) pandemic (United Nations (UN), 2022). This includes the way organisations and businesses operate, which requires the ability to adapt and adopt to the new way of doing things (Opazo-Basaez et al., 2022; Sagar, 2020). As such, the government's digital platform has become one of the important instruments of today's modern public service provision (Sagar, 2020).

In addition to that, it is also inevitable that the public sector often faces complexities in dealing with various types of stakeholders with conflicting needs and demands (Boyne, 2002). As such, the adoption of data and information in facilitating the decision-making process will certainly contribute to delivering better services to the users (Akter et al., 2019; Archenaa and Anita, 2015; Mikalef et al., 2019). Driven by the citizen-centric approach in designing its public digital services, the role of OI has become a valuable commodity, as it aids the organisation in acting effectively based on knowledge relevant to its business purpose, with the support of the effective organisational structure and works environment (Mikalef et al., 2019; Veryard, 2018; Virtanen and Vakkuri, 2015).

It is also interesting to note that the pursuit of efficiency via a technological approach has become a norm and played a significant role in acceleration of technostress or rather ephemeralisation among employees in both private and public sectors (Bahri et al., 2020; Beyza and Evenstad, 2018; ILO, 2022). This causes reduced quality of interaction with public service users and poorer social support at the workplace (Beyza and Evenstad, 2018). According to ILO (2016), those working in the public administration sector are the second largest group after the health and education sector, who suffer from anxiety in the workplace. As a result, ILO (2016, 2022) emphasised the importance of raising awareness and educating organisations on stress as well as developing policies along with measures that promote a productive and decent

workplace. Hence, examining the digital service performance from both the technological and sociological spectrum would be advantageous in the long run.

### **1.3 Digitalising the Malaysian Public Service Delivery from Intelligent Organisation and Employees' Well-being Perspectives**

Realising the importance of delivering quality services to the public, the Government of Malaysia via the Twelfth Malaysia Plan 2021 - 2025 aspires a radical change in the governance of the public organisation via digitalisation. This is implemented by advancing the “Whole of Government Approach” to strengthen the public service delivery in terms of its’ governance operational efficiency and decision-making process. (Economic Planning Unit of Malaysia, 2021).

Generally, the transformation of Malaysian public service delivery via digitalisation has begun as early as 1991, and later became one of the seven flagship applications in 1996 (Wong and Jackson, 2017). Today, with more than 50% of public services available online (end-to-end), the Government of Malaysia via the Modernisation of Administration and Management Planning Unit (MAMPU) has put a strong emphasis on widening the access and improving the quality of digital government services. If we were to look at Malaysia’s digital government service performance at the global ranking, its position at the UNEGDI and Waseda-IAC rankings has been varying (Dahalin et al., 2019; Wong and Jackson, 2017). UNEGDI measures the overall development of digital government, including the scope and quality of online services (UN, 2022). Nevertheless, Dahalin et al. (2019) argued that inconsistencies in Malaysia’s position in the global ranking are not reflective of declining or diminishing efforts and utilisation of its digital government services. It is rather an assessment of the digital government performance among countries relative to one another (UN, 2022). Hence, it serves as a tool for countries such as Malaysia to learn from other countries so it can address the existing weaknesses and strategise them to enhance its service delivery. This is further discussed in Chapter 2.

In order to improve Malaysia’s digital government service performance and its position in the global ranking, the Government of Malaysia has initiated pertinent action plans, particularly under the Malaysian Public Sector Digitalisation Strategic Plan and Twelfth Malaysia Plan

from 2021 to 2025. Setting the target to achieve 80% of digitalised public services nationwide by 2025, the Government of Malaysia emphasises stronger collaboration with stakeholders, utilisation of data-driven technology, and enhancement of ICT-related skills among the public personnel in manifesting the agenda. It is also important to note that digital government is a dynamic domain and hence, requires continuous improvement via constant monitoring and evaluation to address the varying needs of the users (Husin et al., 2017; UN, 2022). Specifically, the success of digital government initiatives requires a strong e-governance structure and back-office support (Gupta and Suri, 2017; Hanna, 2016; Hooda and Singla, 2020).

With regard to this, modern approaches such as OI help public organisations in making the right decision, as they ought to learn how to fit into their environment and survive. As such, the capabilities of creating successful and innovative products, mobilising creative people, and managing knowledge effectively (Travica, 2015) will ultimately facilitate the delivery of quality public services. Hence, various initiatives to promote collaboration among agencies in terms of data sharing, building skill-centric public service personnel, and improving decision-making via data utilisation are in line with the UN's Sustainable Development Growth 2030 agenda and local agendas. Among the initiatives that the Government of Malaysia has embarked on are MyGovernment Enterprise Architecture Blueprint (MAMPU, 2015), MyGovernment Data Exchange (MAMPU, 2020a), and Public Sector Big Data Analytics (MAMPU, 2017).

Fundamentally, the service providers are the backbone of the government machinery, particularly in sustaining and improving the performance of public service delivery (Osborne et al., 2014). In reflecting on how public servants are dealing with pressures at work, a study on Malaysian public service personnel's general well-being was carried out by the Public Service Department (PSD) via the Malaysian Psychological Well-being Index. The overall index published as of December 2022 was 6.5, which indicates a moderate score (PSD, 2022). At the national level, the National Health and Morbidity Survey 2017 reported that 1 in 5 Malaysian adolescents was depressed, whilst 1 in 10 experiences stress (Ministry of Health Malaysia, 2018). Essentially, Malaysia has not produced any empirical data on national occupational stress levels (Kassim et al., 2018), and the available figures do not indicate the exact condition of the ICT service providers. Therefore, examining the determinants of digital

government service quality of the Malaysian public sector from the perspectives of OI, back-office process and occupational stress among the service providers is indeed apt and timely.

#### **1.4 Problem Statement**

Unprecedented global challenges such as the industrial revolution and the COVID-19 pandemic are forcibly demanding the government to accelerate the transformation of their business processes via an ICT approach (Agostino et al., 2020; UN, 2022; Visvizi and Lytras, 2020). This approach is aimed at improving accessibility, efficiency, and users' satisfaction with public services (Kuzey et al., 2019; Rocha, 2012; Sa et al., 2016; Shareef et al., 2019). Nevertheless, the increasing growth of digital services in the public sector domain has resulted in much concern for service quality, as it determines continuous use by the users (Benlian et al., 2011; Nishant et al., 2019; Papadomichelaki et al., 2006; Syed A. Kadir, 2016). Hence, the importance of examining service quality is apparent, as it is regarded as a major driver in improving and consolidating the relationship between users and service providers, resulting in heightened user satisfaction (Najjar, 2019; Namin, 2017).

With regard to this, a wide range of antecedents contributing to better public service quality needs to be considered (Alcaide-Muñoz and Bolívar, 2015; Curtis, 2019). Precisely, the right equilibrium between the voice of the users and providers will help to address the underlying issues in delivering quality digital services (Shareef et al., 2015; Park et al., 2015; Stiakakis and Georgiadis, 2009; Wan Yusoff et al., 2010; Wong, 2019). This signifies that public service must not only consider user centric approach, but also multi-level and multi-actor perspectives of the entire service ecosystem in designing and delivering desirable digital services (Trischler and Trischler, 2022).

In relating these demands to organisational perspectives, modern approaches such as OI is a valuable commodity, as it aids the organisation to mobilise its people's knowledge and promote the process of learning and participative decision-making, which are pertinent to its business sustainability (Albrecht, 2003; Kalkan, 2005; Kiani et al., 2015; Stenvall and Virtanen, 2017; Virtanen and Vakkuri, 2015). Conversely, there has also been some conflicting outcome which indicates that high-performing work practices such as joint decision-making and shared

responsibility are not necessarily linked to improvement in organisational performance, but rather cause a stressful pattern of work (Han et al., 2020; Ogbonnaya, 2019; Ogbonnaya and Messersmith, 2018).

While the role of technology and a high-performing work approach has often been perceived as a silver bullet in delivering efficient public services (Beyza and Evenstad, 2018; Curtis, 2019), less focus is given to programs relating to employees' well-being (Guest, 2017). Occupational health issues such as stress and burnout lead to less productivity, declined performance, and poor quality of service (Beyza and Evenstad, 2018; Hammond et al., 2019; Kelloway and Myers, 2019; Ogbonnaya, 2019). Most importantly, the amplified use of participatory management and computerisation has been linked to occupational stress, due to the increased complexity of tasks, extended working hours, and continuous need to upgrade skills (Beyza and Evenstad, 2018; ILO, 2021; Yunus and Mahajar, 2011).

Narrowing down the scope of the literature to the Malaysian context, digitalisation initiatives of Malaysian public services have begun as early as 1996 to enhance the quality of services by improving accessibility, convenience, and interaction with users (Wong, 2019). Moreover, unforeseen challenges such as the COVID-19 pandemic have also led to a greater emphasis on digitalisation initiatives in Malaysia (MAMPU, 2021a; Ministry of Finance Malaysia, 2022). Today, with 57.02% of public services available online (end-to-end) (MAMPU, 2021b), the quality of Malaysia's digital services ought to be given more emphasis, as it is the most important determinant in ensuring users satisfaction (Baharon et al., 2017). However, the public sector in developing countries often demonstrates a lack of ability to address increasing demand and expectations for efficiency from the stakeholders (Hooda and Singla, 2020). While Malaysia stands at a considerably good position globally with a 'very high' EGDI, digitalisation is not a static element. Therefore, continuous assessment and monitoring to address the varying needs of the users are indeed crucial in sustaining the service performance (Husin et al., 2017; UN, 2022). Similar to the global scenario, heightened needs for technology adoption in delivering better public service delivery can be associated with an unfavourable impact on employees' psychological well-being in Malaysia. In general, the variation in the prevalence of occupational stress among Malaysian employees was within the range of 6.0% to 71.7% with a mean prevalence of 29.9% (Kassim et al., 2018). As for the Malaysian public

service personnel's psychological well-being index, a moderate score of 6.5 were reported (Malaysian Public Service Department, 2022).

Taking arguments from various factors impacting service quality in the global and local sphere, gaps for this study are identified. Firstly, the context of service quality in the digital government requires revisiting, due to different internal and external contributing factors in comparison to private entities (Caudle et al., 1991; Janita and Miranda, 2018; Nishant et al., 2019). Secondly, most studies on service quality or electronic governance only focus on the viewpoint of customers, and thus, service providers' perspectives have not been examined to a similar extent as the customers' standpoint (Arias and Macada, 2018; Stiakakis and Georgiadis, 2009; Wan Yusoff et al., 2010). As a result, important organisational factors such as back-office development and e-governance-related strategies such as continuous monitoring and evaluation of service performance are not given much emphasis in service quality studies (Gupta and Suri, 2017; Hooda and Singla, 2020; Husin et al., 2017; UN, 2022). Thirdly, very limited research has been devoted to studies on organisational determinants such as employee engagement, data, and knowledge utilisation (Falletta and Combs, 2018; Hooda and Singla, 2020; Wang et al., 2018), particularly in the context of transformation, performance and evaluation of public service delivery (De Angelis, 2013; Nograšek and Vintar, 2014; Virtanen and Vakkuri, 2015;). This is also applicable in Malaysia, as research and publications on OI in ASEAN countries are limited (López-Robles et al., 2019). Lastly, it is also important to note that the role of employee psychological well-being has received very little attention in understanding its importance to the quality of service delivery (Clarke and Hill, 2012; Guest, 2017, ILO, 2021).

Considering all these gaps, a more in-depth study is necessary to establish a conclusive framework depicting the influence of various organisational traits along with occupational stress among the service providers, on the sustainability of the Malaysian digital government service quality. The incorporation of OI traits and occupational stress to contextualise underlying systemic qualities of digital services from supply-side perspectives can serve as a guiding principle for the practitioners in delivering and sustaining services that reflect the need of today's public governance.



## **1.5 Research Questions**

Based on the research problem stated, this study is steered by four main research questions as follows:

- a) How do various OI traits affect occupational stress among service providers?
- b) How does occupational stress among the service providers influence the digital government service quality?
- c) Does occupational stress among the service providers mediate the relationship between OI traits and the digital government service quality?
- d) What are the priority factors of OI traits and occupational stress in sustaining the quality of digital government services, based on their importance and performance?

## **1.6 Research Objectives**

This study attempts to gain a better understanding of the linkages among OI traits, occupational stress, digital government service quality from the perspective of the Malaysian public sector's service providers at the federal administrative level. Hence, the purpose of this study is addressed via the following four objectives:

- a) To assess the influence of various OI traits on occupational stress among the service providers;
- b) To evaluate if occupational stress among the service providers affects digital government service quality;
- c) To examine if occupational stress mediates the relationship between various OI traits and the digital government service quality;
- d) To identify the priority factors of OI traits and occupational stress in sustaining the quality of digital government services, based on the importance and performance.

## **1.7 Research Scope**

This study examines the mediating role of occupational stress among the service providers on the relationship between OI traits and digital government service quality. To serve this purpose, the study only includes service providers, who are public service employees at the Malaysian federal government administrative level. This is mainly due to the nature of its federal digital services that cover a wide spectrum of users and sectors across federal, state, and district. At the same time, only digital services involving G2B and G2C will be considered for this study as it is deemed more relevant and in accordance with the priorities set by the Government of Malaysia and the UN to deliver better citizen-centric government services. Hence, internal services involving government agencies and personnel (G2G) will be excluded.

In terms of the occupational stress perspective, the type of stress to be focussed on is the consequences of ‘negative stress’ represented by time stress and anxiety among digital government service providers. In principle, this study do not make any comparisons between schemes (technology, administrative, etc.), length of service (long or short), work classification (professional, supporting, etc.), or even gender (male and female) in drawing the conclusions. Hence, this study is more interested to understand the linkages among the variables in the proposed model, from the employee and organisational-oriented OI traits perspectives.

## **1.8 Significance of the Study**

The study is intended to add value to both theoretical as well as a practical contributions:

### **1.8.1 Theoretical Contribution**

Generally, this study can be best conceptualised by the Organisational Model of Stress (Parker and Decotiis, 1983), linking all three variables involved in this study. Specifically, this study aims to extend the context of this model by incorporating the perspectives of the Job Demand-Resources Theory (Bakker and Demerouti, 2011) and Public Service Dominant Theory (Osborne et al., 2014). Hence, this study will contribute to these three theories and models via the following approaches.

Firstly, this study examines the ‘stressors’ component in the Organisational Model of Stress from the lens of Job Demand-Resources Theory (Bakker and Demerouti, 2017). Essentially, the stressors are represented by various OI traits that can be attributed to either job demands or job resources. Hence, the theory is flexible, as to how certain roles or functions represents job demand or resources in a different work context, causing varying outcome on psychological well-being. Hence, the outcome of this study will extend the understanding of stressors in the organisational model of stress from the Job Demand-Resources Theory perspective. Specifically, this study examines how various stressors or OI traits in public organisations act as job demands, or rather job resources.

Secondly, it extends the scope of ‘second level outcome’ in the Organisational Model of Stress from individual to organisational level job performance in public organisations utilising digital service platforms. This organisation-level performance is translated into the digital government service quality which is to be examined in accordance with the Public Service Dominant Theory (Osborne, 2006; Osborne et al., 2014). As such, the importance of outward focused, co-production between the service users and producers as well as operations management within public organisations to deliver efficient and effective service delivery are incorporated in this study domain.

Thirdly, this study also adds value to the Public Service Dominant Theory. The theory recognises the role of employees in terms of skills and knowledge, with no attention given to the psychological well-being factor contributing to employees’ performance in delivering services. Therefore, this study contributes to the existing Public Service Dominant Theory by introducing the occupational stress component to understand the psychological well-being factors in the service delivery context.

### **1.8.2 Methodological Contribution**

This study firstly extends the scope of literature on service quality by focussing on the service providers' perspective. Secondly, it assesses if digital service quality is influenced by a determinant beyond technological aspects, which is occupational stress. Thirdly, this study also examines the linkages among three variables to understand if occupational stress plays any role in the influence of various OI traits on digital government service quality. Lastly, it

examines how OI traits and occupational stress factors affect digital service quality via the importance-performance map analysis.

In terms of methodological contribution, this study employs triangulation study design to capture the perspectives from both quantitative and qualitative perspectives. Besides, this study examines all variables as multi-dimensional constructs, and thus employ complex analysis of measuring higher order construct using a disjoint two-stage analysis approach. Also, this study extends the scope of existing literature by focussing on the public sector context in the developing countries in ASEAN, which is represented by Malaysia.

### **1.8.3 Practical Contribution**

In terms of practical contribution, this study is also expected to propose relevant strategies for the top management and senior officials to heighten the quality of digital government service delivery in the Malaysian public sector context. Generally, there are two important aspects that this study aims to contribute. Firstly, this study incorporates occupational stress to examine its mediation effect in addressing the missing link between OI and digital government service quality. Specifically, it helps to further understand how OI traits act as job resources as well as job demands on service providers' well-being and eventually service performance. Hence, this will serve as a basis for the public sector officials to sustain positive traits and revisit the current OI practices that cause unfavourable impacts on employees' well-being and eventually on organisational performance.

Secondly, the Importance-Performance Map Analysis extends the standard results reporting of path coefficient by identifying predictors that have a relatively high importance and also a relatively low performance for digital government service. Additionally, this study incorporates Tree-Map Chart (qualitative data) to support and justify the findings from quantitative survey data. This will facilitate more conclusive intervention strategies to help public sector officials in sustaining the digital service quality and enhance the well-being of service providers. A healthy organisational ecosystem would indeed be advantageous to both employees and organisation, in promoting employees' well-being and thus enhancing public service' productivity and performance.

## **1.9 Key Definition of Terms**

### **Organisational Intelligence**

The extent to which an organisation mobilises all its potential as a fully functioning brain and sustains effective interaction at its' inner and outer boundaries on achieving organisation mission. Thus, it involves upskilling people's knowledge in dealing with a large volume of information, as well as sharing, and disseminating them within the organisation. This also encompasses organisation's ability to engage in information from its internal and external environment to maintain stability, adapt, and grow (Albrecht, 2003; Johri and Aggarwal, 2016; Stenvall and Virtanen, 2017).

### **Digital Government Services**

It refers to the government services delivered via the digital service portal to the external stakeholder, comprising government to business (G2B) and government to citizens (G2C) (Wong and Jackson, 2017).

### **Digital Government Service Quality**

It refers to the extent to which the performance of the service delivery is sustained via internal process support such as constant monitoring and evaluation, to ensure effective and efficient online information search and transaction as well as communications between the government and the users (Blut, 2016; Hien, 2014; Osborne et al., 2014; Stamenkov and Dika, 2015; UN, 2022).

### **Occupational Stress**

It describes the feeling of an individual who is required to deviate from normal or self-desired functioning at the workplace as the result of role, opportunities, constraints, or demands relating to potentially important work-related outcomes (Parker and Decotiis, 1983; Shukla and Srivastava, 2016). The context of stress in this study is the negative stress or 'distress' that contributes to time stress and anxiety (Bland, 1999; Parker and Decotiis, 1983; Selye, 1976).

## Service Provider

Service provider refers to the public service personnel belonging to the ministries or departments that provide digital services to the citizen and businesses. Specifically, this covers all team members who are involved in the planning, operations, and delivery of the digital services including the technical team, change management team, and business process team. (MAMPU, 2018). However, the project manager and their superiors are not included in this context.

### **1.10 Organisation of Thesis**

This study examines the relationship among OI traits, digital government service quality and occupational stress among service providers which will be organised into six chapters. Chapter 1 provides an introduction to the research topic as well as the research outline. It aims to provide a profound understanding of how the research is developed. Accordingly, a general overview of each of the variables in this study is introduced, along with brief insights into how these variables are linked to one another. The scenario in the Malaysian public sector context is also explained as it reflects the focus of the study. Additionally, the problem statement, research questions, objectives, scope of the study and significance of the study are stated. Finally, this chapter outlines the definitions of key terms used in the study.

Chapter 2 provides a comprehensive literature review of the main constructs involved in the study and their linkages among one another. Specifically, related literature on OI, digital service quality and occupational stress are discussed. Subsequently, related theories and models of OI, digital service quality, and occupational stress will be presented. Based on these theories and models, the theoretical framework for this study are proposed. Following this, research hypotheses are developed accordingly, based on research objectives and questions, supported by relevant empirical evidence in the literature.

Chapter 3 presents the methodology applied in this study by outlining the research design and justifications, population and sampling technique of the study, instrument development process, and data analysis approach. This chapter also discusses the preliminary data analysis during the pilot study to assess the scale's reliability and validity prior to employing it for the

actual study. Following this, Chapter 4 presents the outcome of the final quantitative data analysis from the survey undertaken during the actual study, comprising demographic profiles, hypothesis testing and Importance Performance Map Analysis. Chapter 5 deliberates on the qualitative data analysis which is aimed at validating the quantitative data finding and interpreting the analyses outcome for strategy formulation. Finally, Chapter 6 discusses the findings of the study and proposes relevant strategies for managerial action. Besides, it will also focus on how the research findings of this study address the theoretical, methodological, and practical implications in contributing to the body of knowledge. Lastly, the limitations and further recommendations of this study for future research are also proposed.

## **1.11 Conclusion**

Chapter 1 has set the context of this research by looking at issues from the global spectrum which narrows down to the public sector and eventually to the Malaysian public sector perspectives. As such, this chapter discusses the relevance of both technological and social factors as enablers in sustaining digital government service quality. Following this, the problem statement, research questions, and objectives for this study are deliberated. Next, the significance of this study in terms of theoretical, practical, empirical, and methodological contributions is also highlighted. The last sections of this chapter have outlined the definition of key terms used throughout this thesis.

## **CHAPTER 2: LITERATURE REVIEW**

This chapter starts with an overview of the key underlying concepts and definitions of organisational intelligence, digital government service quality and occupational stress. Following this, it gives a brief introduction of organisations, as to how public organisations adapt themselves to varying expectations in today's business landscape and how digitalisation plays its part in addressing these needs. Next, it narrows down the scope of discussion to the digitalisation initiatives by Malaysian public service and its position in the global ranking. Key enablers in sustaining Malaysian public sector digital service quality are discussed in the following section highlighting the important roles of organisational intelligence and psychological well-being in accomplishing this goal. Following this, this chapter deliberates the underpinning theories and models that are pertinent to this study. Lastly, the hypotheses development approach and formulation are explained, including how the key variables relate to one another prior to proposing the theoretical framework for this study.

### **2.1 The Fundamental Concepts and Definitions of Key Variables**

#### **2.1.1 Digital Government Service Quality**

As service science evolves from the traditional approach, the delivery of services today has been utilising electronically mediated platforms such as the web, mobile devices and information kiosks (Rowley, 2006; Rust and Lemon, 2001). The evolution of digital service platforms has somewhat influenced the fundamental concepts of digital government service quality as well. Besides, the focus of digital government service delivery, as to whether it focusses on citizen or organisation perspectives has also contributed to differing definitions of service quality. The various definitions of digital government services and digital government service quality are discussed in the following sections. Accordingly, the definition of digital government service quality is determined for this study.

##### **2.1.1.1 Definition of Digital Government Services**

Generally, the connotation of 'digital services' or 'electronic services' represents the same concept (Jansen and Olnes, 2016) and has often been misinterpreted with 'e-commerce' and



‘e-business’, as all of these concepts utilise ICT as their operating platforms. However, researchers such as Voss (1999) drew a clear demarcation line between these two terminologies. ‘E-commerce’ and ‘e-business’ are associated with the selling and buying of goods, while ‘digital services’ or ‘e-services’ offers pure service to the users, which can be conditional or unconditional (Voss, 1999). On another note, the term digital service in the context of the public sector is synonymous with electronic government services and digital government services. Looking from a broader perspective, electronic services are one of the four areas of electronic government. The other three areas are electronic management, electronic democracy, and electronic public policy (Reyes et al., 2012; Qureshi et al., 2017). Various definitions of digital government service by scholars are presented in Table 2.1 below.

**Table 2.1**

*Definitions of Digital Government Service*

<b>Author</b>	<b>Definition of Digital Service</b>
<b>Digital Government Service</b>	
Brown and Brudney (2001)	The use of technology, especially Web-based applications, to enhance access to and efficiently deliver government information and services.
OECD (2003)	The use of ICT, and particularly the Internet, to achieve better government.
Gil-García and Pardo (2005)	The usage of ICT in the sphere of public administration to improve managerial efficiency and effectiveness, encourage principles and processes entailed by democracy and develop a structure, which would provide legal and supervisory oversight.
United Nations (2014)	The use and application of information technologies in public administration to streamline and integrate workflows and processes, effectively manage data and information, enhance public service delivery, as well as expand communication channels for engagement and empowerment of people.
World Bank (2015)	The use of information technologies by the government (such as Wide Area Networks, the Internet, and mobile computing) that can transform relations with citizens, businesses, and other arms of government.
Arias and Maçada (2018)	The use of IT in government operations, including its effects on public service delivery, citizens’ satisfaction and democratic standards.

### **2.1.1.2 Definition of Digital Government Service Quality**

Delivery of digital services takes place over various platforms, involving a wide variety of users: citizens, businesses, governmental and non-governmental bodies. Hence, fulfilling the users' expectations and heightening users' satisfaction have become service providers' utmost priorities. In other words, service quality is defined as a measurement of the conformance of the delivered service level to users' expectations (Lewis and Booms, 1983). Since the quality of service is based on the user's judgment, service quality is regarded as the gap between customers' expectations and perceptions of service performance (Hien, 2014; Parasuraman et al., 1985). Nevertheless, scholars such as Cronin and Taylor (1992) proposed service quality to be conceptualised as an attitude and measured based on performance, instead.

In addition to being conceptualised from external users' viewpoint, it is also interesting to note that service quality is defined from internal or backend office perspectives (Hien, 2014). Specifically, it recognises the role of institutional support and internal (back office) service quality in sustaining the performance of service delivery (Hien, 2014; Osborne et al., 2014; UN, 2022). This includes the need to regard public service delivery logic as an iterative process via continuous improvement to ensure the sustainability of its' quality and performance (UN, 2022; Osborne et al., 2014). Besides, the extent to which the backend system helps the employees to perform their task efficiently were also adapted by other studies to define service quality (Giorgadis and Stiakakis, 2009; Lai, 2006; Lai and Chen, 2009).

The conceptualisation of service quality in various context as discussed above is applicable to service delivered over any platforms, to a certain extent. Perhaps, the quality assessment process for digital services and non-digital services exhibits some similarities and differences at the same time. As in the context of digital service quality in both government and non-government domains, the users' perception of the service quality of digital government services may or may not be identical to those of non-digital ones. Most often, the users of government services have had experiences with non-digital platforms before transitioning to digital ones (Jing and Wenting, 2014; Najjar, 2014). Hence, this influences their perception, judgment and expectation of the new approach. This includes examining the users' opinions

on the government's portal and benchmarking actual digital government implementation (Brebner and Parkinson, 2006; Eschenfelder, 2004; Kaylor et al., 2001).

Definitions of service quality from various perspectives over the previous years are tabulated in Table 2.2 below.

**Table 2.2**

*Definitions of Digital Service Quality and Digital Government Service Quality*

<b>Author</b>	<b>Definitions</b>
<b>Digital Service Quality</b>	
Frost and Kumar (2000)	the difference between front-line staff's (internal customers) expectation and perception on the support service and staff's performance level.
Zeithaml (2002).	the level to which a website uses effective and efficient shopping, purchasing and delivery of goods and services.
Santos (2003)	consumer's overall opinions and evaluation regarding the excellent e-service delivery in online market.
Parasuraman et al. (2005)	the extent to which a web site facilitates efficient and effective shopping, purchasing, and delivery.
Lai (2006)	system's ability to deliver functions and services which is closely associated with and helpful for the completion of employees' tasks and jobs, leading to service quality.
Collier and Bienstock (2006)	the user's perceptions of the result of the service delivery as well as their perceptions of service recovery in case of service failures.
Lai and Chen (2009)	The ability of the e-business system to deliver functions and services that assist employees in collecting, analysing, and retrieving data, as well as producing information to complete their jobs and tasks in ensuring good service delivery.
Ancarani (2005)	an incorporation of IT-mediated service content and delivery components.
Srivastava et al. (2011)	the capability of e-government services to meet the expectation of users, whilst the gap between perception and expectation is positive.
<b>Digital Government Service Quality</b>	
<b>Author</b>	<b>Definitions</b>
Tan et al. (2013)	citizens' perceptions of the general performance of public e-services offered via an e-government website in fulfilling their transactional goals.

Hien (2014)	the management and support of the organisation which includes all internal processes in delivering e-service to citizens.
Blut (2016)	The extent to which government websites facilitate efficient and effective information search and online transactions as well as communications between government and citizens.
Sa et al. (2016)	the provision of government transactions via the online channel

Since this study takes an approach to examine service quality from the service provider perspective, the digital government service quality is defined in the context of internal process efficiency to create sustainable service performance. Bearing in mind that digital government agenda is a journey and not a final destination, it is important for the Malaysian Public Sector to deliver digital services continuously with sustainably superior quality over a long period (Kandampully and Menguc, 2000; Stamenkov and Dika, 2015). This is also reflective of Malaysia's UNEGDI index of 0.7892 since the year 2020, which indicates that it is already in the 'Very High' index group alongside other developed countries.

There two key elements that are taken into consideration in defining digital government service quality in this study. Firstly, it relates to the extent to which the digital government services facilitate efficient and effective information search and online transactions as well as communications between government and citizens (Blut, 2016). Secondly, it comprises the internal process that is carried out by the service providers in sustaining the performance of digital government services which involves continuous monitoring and evaluation (Osborne et al., 2014; Stamenkov and Dika, 2015; UN, 2022). Hence, digital government service quality is defined as the extent to which the performance of the digital service delivery is sustained via internal process support such as constant monitoring and evaluation, to ensure an effective and efficient information search and transactions as well as communications between the government and the users (Blut, 2016; Hien, 2014; Osborne et al., 2014; Stamenkov and Dika, 2015; UN, 2022).

### **2.1.2 Organisational Intelligence**

In the early years, the understanding of Organisational Intelligence (OI) was very much influenced by the intelligence function in the military and national security domain (López-

Robles et al. 2019). Hence, OI scholars such as Wilensky's (1966) approach was mainly revolved around strategising best approaches during wartime and estimating enemy power (Smelser, 2015). However, his main idea was still centred on the quality of knowledge, which is also deemed as core problem in the non-military organisation, along with its implications in making good decisions.

Today, the notion of OI has been addressed over the past decades in various research disciplines, including organisational and individual learning, knowledge management, change management, strategic management, and organisational development (de Vries, 1991; Falletta, 2008; Stallinski, 2004; Yolles, 2005). The term intelligence itself has often been confused with knowledge (Ackoff, 1989). Rothberg and Erickson (2004) argued that knowledge is static and thus is only considered valuable if people use it. As such, the transformation of knowledge into intelligence is believed to take place upon its utilisation in certain situations by the decision-makers (De Angelis, 2013). In a broader perspective, knowledge management provides the methodology to manage knowledge, while OI integrates and interprets them into actionable information for decision making (De Angelis, 2013).

In relating OI with other type of intelligence, it is one of the three components that constitute 'enterprise intelligence' (Johri and Aggarwal, 2016). The other two components are 'business intelligence' and 'competitive intelligence'. OI complements these two intelligence areas and emphasises the importance of people, as no technological system in the organisation can generate intelligence without people.

#### **2.1.2.1 Definition of Organisational Intelligence**

The notion of OI has been postulated from the perspectives of both human and organisational level intelligence. For instance, Matsuda (1992), Halal (2002) and Albrecht (2003) regarded OI processes in the organisation as analogous to activities within the human brain. Thus, the understanding of complex intelligence processes within the organisation has been often associated with how individual learning mechanisms in handling the day-to-day business of cognition. In other words, organisations are believed to have the same abilities such as learning and information processing, as it is made up of humans too (Kiani et al., 2015).

Hence, OI scholars like Albrecht (2003) regarded OI as a collective intelligence, as to how organisation mobilises all its' intellectual capacity to accomplish organisations' goals and mission. As such, the importance of individual employees' discretionary effort in contributing and acting synergistically to achieve organisation's mission is not to be excluded in conceptualising OI.

While OI is undoubtedly comparable to human intelligence, scholars like Wilensky (1966), Schwaninger (2001), Albrecht (2003), Stalinski (2004) and Falletta (2018) defined OI from an organisation level perspective. Specifically, this leads to an understanding of OI as a recursive process that organisations encounter, as to how the interaction between the organisation and its internal and external environment via utilisation of strategic management approach and technological tools facilitate the decision-making process (Ocasio et al., 2020). Undoubtedly, this involves antecedents at organisationl level such as competent leader at every level, organisation's structure, knowledge utilisation and decision-making process.

As OI is a concept that recognises the importance of both individual employees and organisation as a whole, the definition of OI is also reflective of one or both of these combinations.

Various definition of OI is tabulated in Table 2.3.

**Table 2.3**

*Definitions of OI from Various Scholars*

<b>Author</b>	<b>Definition of OI</b>
Wilensky (1966)	It involves the problem of gathering, processing, interpreting and communicating the technical and political information to aid the decision-making process.
Glynn (1996)	a description of the intelligence of people as well as aggregation of their intelligence.
Matheson and Matheson (2001)	The principles which reflect underlying cultural and organisational patterns, leading to effective implementation of many best practices.

<b>Author</b>	<b>Definition of OI</b>
Halal (2002)	A conceptual framework that sketches out the cognitive functioning of modern organizations, thereby providing insights into the effective use of knowledge.
Albrecht (2003)	The capacity of an organization to mobilize all of its brainpower, and to focus that brainpower on achieving its mission.
Robson (2003)	Organisation that is able to develop an intelligent system, which comprise a group of interacting assets such as people, equipment, processes and feedback control mechanisms involved in achieving a specific purpose.
Stalinski (2004)	Organisation's system's ability to engage in information transfer with its internal and external environments in order to maintain stability, adapt, and grow.
Yolles (2005)	The ability of a singular or plural actor to discern attributes of cultural knowledge, and to efficiently and effectively discriminate, relate, manipulate and apply that knowledge in a variety of phenomenal environments.
Lefter et al. (2008)	An organisation that uses knowledge management as adaptive tool for coping with an environment which is continuously changing.
Yolles and Fink (2011)	The ability of an organisation to appreciate and harness its own knowledge as information about its environment, to construct new knowledge converted from information about its experiences, and to pursue its goals effectively and efficiently.
Virtanen and Vakkuri, (2015)	A process determining the most appropriate performance-monitoring systems, the most valid performance indicators and the most efficient use of performance information in decision-making.
Johri and Aggarwal (2016)	It deals with people, as people alone can create intelligence. Thus, the employees need to improve their skills in dealing with the vast streams of information, analysing, sharing and disseminating information within the organisation.
Cohen (2016)	The level of information distribution to its stakeholders to make fact-based information and standardised decision process in the organisation.
Ocasio et al. (2020)	the interplay between procedural rationality and sensible foolishness, which is characterised by recursive process of programming, monitoring, sensemaking, search, and decision making by an organisation.

With regard to the context of this study, OI is defined to suit the need of public service organisation. OI in most of the definition above are confined to internal processes within organisation, without explicitly indicating as to how engagement with its stakeholders plays its part in pursuing organisational goal. As the public service organisation is an open system, it is important to focus on networks and collaboration between stakeholders from different agencies (Dickinson and Glasby, 2010; Stenvall and Virtanen, 2017; Sullivan and Skelcher, 2002;). Hence, OI in this study context is defined as the extent to which an organisation mobilises all its potentials as a fully functioning brain and sustains effective interaction at its' inner and outer boundaries on achieving organisation mission (Albrecht, 2003; Dealtry, 2004; Stenvall and Virtanen, 2017).

### **2.1.3 Occupational Stress**

The well-being of the employees is one of the core factors contributing to organisational success, albeit receiving little attention by most employers. Clearly, investment on the well-being of the employees has been perceived as resource intensive, for its return on investment is unclear (Krekel et al., 2019). As the World Health Organisation (WHO) puts it, well-being is generally defined as a 'a state of complete physical, mental and social well-being, not merely absence of disease (WHO, 1946). Likewise, in the context of workplace, it is termed as the overall quality of the employees' functioning and experience at work (Grant et al., 2007; Warr, 1987). Based on the past studies, the employees' well-being at the workplace are made of three main ingredients, namely the physical, social and psychological functioning (Guest, 2017). Specifically, phycological and social well-being are represented by accomplishment of potential and finding of meaning along with interpersonal relationship, social support and trust. The physical well-being complements the other two, by focussing into physiological dimensions of health or illness at work, including positive and negative indicators such as a sense of energy, exhaustion and stress (Warr, 1990).

According to the International Labour Organisation (2016), 'stress' is not regarded as health impairment, but rather signifies the first sign of a detrimental physical and emotional response. Interesting enough, stress has both negative and positive connotations, that reacts to a stressor and potentially have the impact on individual's mental or physical health and well-being. Positive stress or 'eustress' is represented by stress that is good and inspire employees



to perform. Conversely, negative stress or 'distress' is the one that leads to bad consequences (Bland, 1999; Selye, 1976).

### **2.1.3.1 Definitions of Stress and Occupational Stress**

Looking at the definition of stress in previous literatures, scholars believe that it is not focussed on the individual or the environment per se, but rather as in the misfit between the two elements (Shirom, 1982). This is contrary to the definition of stress that focusses on either features of the environment or psychological or physiological response by an individual, which was criticised by some scholars (Edwards, 1992; Lazarus and Folkman, 1984). As such, Mostert et al. (2008) asserted that stress can be termed by the response-based, stimulus-based and stressor-strain interaction. While the stimulus-based approach explains stress as in how an individual is impacted by the external environment, the response-based approach views it as the psychological or physiological response of an individual to the forces due to various situations in his environment.

Since this study focusses on work-related stress, the discussion here revolves around this context. It is also important to note that the term 'occupational stress' is used interchangeably with work stress and job stress, since it denotes the same thing (Frone, 1990; Larson, 2004). Essentially, the concept of occupational psychology of stress is originated from multiple approaches comprising psychological, sociopsychological, sociological and biophysical (Clegg, 2001; Selye, 1976). Nevertheless, most of the occupational psychology studies emphasise negative job design and work factors (Munro et al., 1998), and thus regarded as an important source of research on job stressors (Shaw 1999).

According to Parker and Decotiis (1983), work stress is a temporary feeling, and not entirely a lasting deviation. Hence, it is considered as the first-level outcomes of the organisation and work, which is reflected via discomfort feeling. On the other hand, the second - level outcomes are resulted from intense and recurring work stress rather than as stress per se. The second-level outcome comprises different level of satisfaction, organisational commitment, performance and motivation. Their views on the discrepancy between the first-level outcome, recurrence potential and the second-level outcomes are in accordance with the findings of

other scholars who posited that stress is additive (Selye, 1976) and represented by psychological and physiological effects of the daily hassles that people experience (Kanner et al., 1981; Lazarus, 1981).

Definitions of ‘stress’ and ‘occupational stress’ from various authors are summarised in Table 2.4 below.

**Table 2.4**

*Definitions of stress and occupational stress*

<b>Author</b>	<b>Definition</b>
<b>Stress</b>	
Selye (1976)	a non-specific response of the body to any demand of change.
Lazarus and Folkman (1984)	an interruption of the equilibrium of the cognitive, emotional and environmental system by external factors.
Pitts and Phillips (1993)	it involves transaction of an individual and their environment as to how psychological pressure can have pathological consequences.
Ornelas and Kleiner (2003)	the by-product of contemporary life resulting from our efforts to balance the demands of the work and of family life.
Topper (2007)	an individual’s psychological and physiological response to the perception of challenge and demand.
ILO (2016)	the damaging physical and emotional response caused by a disproportion between the perceived demands and resources as well as capabilities of individuals to manage with those demands.
<b>Occupational Stress</b>	
Parker and Decotiis (1983)	the feeling of a person who is required to diverge from normal or self-desired functioning at work due to opportunities, limitations, or demands about potentially important job-related outcomes.
Arnold et al. (1995)	any force that pushes a physical or psychological factor beyond its range of ability, producing strain within an individual.
Hausman (2001)	the uncertainty and anxiety due to the emergence and adoption of new systems and technology between organisations.
WHO (2003)	the response an individual may have when their knowledge and skills are not matched to their work demand and pressure, which challenges their ability to cope.

Jamal and Baba (2000)	the temporary adaptation process causing psychological strains and it is generally caused by an imbalance between work demands and the capability of responding to the job which can eventually lead to job burnout.
Ganster and Rosen (2013)	the process by which workplace psychological experiences and demands (stressors) produce both short-term (strains) and long-term changes in mental and physical health.
Shukla and Srivastava (2016)	the stress experienced by an individual due to their role in the organization.
ILO (2016)	It occurs when either a) the demands of the work do not match or exceed the employee's abilities, resources, or needs; or b) an individual employee or group's coping abilities or knowledge are not matched with the expectations of the organisational culture.

For the purpose of this study, occupational stress is defined as the feeling of an individual who is required to deviate from normal or self-desired functioning at the workplace as the result of role, opportunities, constraints, or demands relating to potentially important work-related outcomes (Parker and Decotiis, 1983; Shukla and Srivastava, 2016). The context of stress in this study is the negative stress or 'distress' that contributes to bad consequences (Bland, 1999; Selye, 1976).

## **2.2 An Overview of Digitalisation of Public Service Delivery in the Global and Local Sphere**

### **2.2.1 Transforming the Way We Do Business via Digitalisation: A Global Perspective**

Organisation's adaptation to the changing environment is one of the essential components of strategic management, which requires them to realign their strategies to the needs and interests of the various stakeholders (Yusoff, 2008). Similar to private organisations, public organisations are also bombarded by various stakeholders with conflicting demands (Cohen and Kotorov, 2016). Unlike private organisations, public organisations deal with a variety of stakeholders including the citizen, businesses, non-governmental organisations and government agencies (Boyne, 2002). As the rivalry in service industries is rising and becoming more complex, organisations often reengineer their core skills to remain competitive and profitable (Rothaermel, 2013).

More recently, the COVID-19 pandemic has significantly impacted the way both private and public organisations operate, which requires the ability to adapt and adopt new ways of doing things (Md Shah et al., 2020). Besides, the aspiration and direction of global bodies such as the UN which emphasises citizen-centric, data-driven governance and sustainable development goals in its digital government agenda have also influenced the related policy decision. (UN, 2020). Precisely, organisations would be able to sustain its performance by leveraging the technological tools to adapt to the new norms of carrying out tasks and maintaining communication flow. This will certainly lessen the impact of the pandemic on organisational routines, given the restricted physical interactions and movement. As such, the government's digital platform has become one of the important instruments of today's modern public service provision (Liu et al., 2010; Maniam and Halimah, 2010; UN, 2022). At the same time, the quality of the service has become the key indicator as to how their services are different than the one offered by the competitors (Kumar et al., 2009; Legcevic, 2008).

### **2.2.2 Digitalisation of Public Service Delivery: A Malaysian Perspective**

The aspiration for a radical change in the governance of the public organisation has been given the utmost priority by the Government of Malaysia. With regard to various challenges resulting from unprecedented external factors, great emphasis has been put on digitalisation of its public services, so it can remain relevant in navigating the era of the new normal (The Prime Minister's Office of Malaysia, 2020). This is further intensified in the 12th Malaysia Plan 2021-2025 and Malaysian Public Sector Digitalisation Strategic Plan 2021-2025 to fundamentally drive this transformation agenda.

As stipulated in one of the game changers of 12th Malaysia Plan 2021-2025, transformation of the public service is to be materialised through the "Whole of Government Approach", involving not only the development of high performing public service, but also advancement of the administration and operational efficiency to improve decision making process. Today, with 57.02% of public services made available online (end-to-end), MAMPU has put a strong emphasis on providing inclusive, quality and integrated digital services. Having targeted an 80.0% of end-to-end digital services nationwide by 2025 (MAMPU, 2021b; Economic Planning Unit of Malaysia, 2021), the need to sustain the quality of digital government services to a wide variety of stakeholders is indeed crucial.

The success of digitalisation agenda also requires a transformation of the public sector internal business process. Accordingly, various initiatives have been planned out to support this agenda. These include the Public Sector Big Data Analytics Blueprint (MAMPU, 2017), MyGovernment Enterprise Architecture Master Plan (MAMPU, 2015), Innovative and Creative Group Circular (MAMPU, 2016) and Malaysia Government Data Exchange (MAMPU, 2020a). All-inclusive and holistic strategies will ensure the public service digitalisation agenda fulfils the demand of today's unprecedented surroundings and stakeholders in delivering excellent services to the users.

### **2.2.3 The Performance of Malaysia's Digital Government Service: Where is Malaysia at?**

The performance of digital government service delivery worldwide is assessed by international bodies such as the UN E-Government Development Index (UNEGDI) and The Waseda – IAC International Digital Government Rankings. The most widely known UNEGDI is used as a basis to rank the e-government development among all the UN Member States comprising 193 countries. UNEGDI is composed of three indices, namely the Online Service Index (OSI), Telecommunication Infrastructure Index (TII) and Human Capital Index (HCI). The UNEGDI range is between 0 to 1 based on the weighted average of normalised score for all the three components which is grouped into four categories: Low EGDI, Middle EGDI, High EGDI and Very High EGDI (UN, 2022).

On the other hand, the Waseda-IAC ranking is led by the Waseda University since the past 16 years in collaboration with the International Academy of Chief Information Officers along with ten world-class universities and research centers. The ranking is reflected in a percentage form, derived from comprehensive benchmarking indicators comprising ten main indicators and 35 sub-indicators, reflecting the latest developments of digital government in the ICT section. Among the indicators assessed are E-Participation and Digital Inclusion, Open Government and Government CIO. It has 64 participating countries in 2021 (Waseda, 2021).

Looking from Malaysia's digital government services performance spectrum, its' position at the UNEGDI and Waseda-IAC ranking has been varying (Dahalin et al., 2019; Wong and

Jackson, 2017). Specifically, Malaysia's UNEGDI rank demonstrated an upward trend from 2005 to 2010, until it was on a persistent decline from 2012 to 2016 and a significant increase from 2018 to 2020. A slight decrease was noted in both its' position and score in the year 2022. The OSI which is the sub-component of UNEGDI has also demonstrated a somewhat similar trend. Today, Malaysia stands at the 53<sup>rd</sup> position out of 193 countries in the UNEGDI 2022 Ranking, sustaining a 'Very High' score since 2020 in both UNEGDI and OSI. Malaysia's performance trend from 2004 to 2022 is tabulated in Table 2.5.

Similar inconsistencies have also been observed in Waseda – IAC Digital Government Rankings from 2012 to 2021. The performance was on declining trend for both its position and score from 2013 to 2014, before it got improved in 2015. Again, a downward trend was demonstrated in 2016 to 2017. In 2018, Malaysia regained its position and ranked at the 25<sup>th</sup> position out of 65 countries with the score of 63.97. In 2019/ 2020 and 2021, slight decline was observed in its position to 30 and 33 respectively, despite the highest score recorded in 2021 (73.21). Malaysia's performance in the Waseda – IAC Digital Government Rankings from 2012 to 2021 is tabulated in Table 2.6.

With regard to the performance trend, Dahalin et al. (2019) argued that inconsistencies in Malaysia's position in the global ranking are not reflective of declining or diminishing efforts and utilisation of its digital government services. For instance, the fluctuating performance in UNEGDI was rather contributed to the significant improvement of other countries' digital government initiatives, which overtook Malaysia during those respective years (Dahalin et al., 2019). Besides, UNEGDI is not a measurement of digital government development in an absolute term but serves as an assessment of the digital government performance of countries relative to one another (UN, 2022). Hence, it serves as a tool for countries like Malaysia to learn from other countries so it can address the existing weaknesses and strategise them to enhance its service delivery.

**Table 2.5***Malaysia's UNEGDI and OSI Ranking 2004 - 2022*

<b>Year</b>	<b>Rank</b>	<b>EGDI*</b>	<b>OSI*</b>
2004	42	0.5409	0.4900
2005	43	0.5706	0.5769
2008	34	0.6063	0.6756
2010	32	0.6101	0.6317
2012	40	0.6703	0.7908
2014	52	0.6115	0.6772
2016	60	0.6175	0.7174
2018	48	0.7174	0.8889
2020	47	0.7892	0.8529
2022	53	0.7740	0.7630

*Note: \*EGDI: E - Government Development Index. OSI - Online Service Index.*

*\*\* Index Scale - Low EGDI: 0 - 0.24 Middle EGDI: 0.25-0.49 High EGDI: 0.5-0.74 Very High EGDI: 0.75 - 1.00*

Adapted from "E-Government Development Index (EGDI)" by the United Nations, 2022 (<https://desapublications.un.org/sites/default/files/publications/2022-09/Report%20without%20annexes.pdf>). Copyright 2022 by the UN. In public domain.

**Table 2.6***Malaysia's Waseda – IAC Digital Government Ranking 2012 – 2021*

<b>Year</b>	<b>Rank</b>	<b>Score</b>
2012	23	67.10
2013	24	66.26
2014	27	63.71
2015	25	64.87
2016	31	58.40
2017	36	56.39
2018	25	63.97
2019/ 2020	30	68.77
2021	33	73.21

*Note:* The performance score is measured on a percentage basis. Higher percentage implies better performance. Adapted from "Waseda – IAC International Digital Government Rankings" by the Waseda-IAC, 2021 (<https://idg-waseda.jp/ranking.htm>). Copyright 2020 by the Waseda-IAC. In public domain.

At the local domain, the Government of Malaysia has also developed its very own rating system, known as the Website and Online Government Online Service Monitoring System (SPLaSK). This system also incorporates the Government Online Services E-Rating as one of its components. A total of 575 digital government services across 549 agencies have been included in the platform as of November 2022 (MAMPU, 2022). Data on users' ratings were still unavailable at the point where SPLaSK was accessed.

As Malaysia's digital government service performance is considerably good, it is important to sustain and continuously assess it so the varying needs of the users can be addressed (Husin et al., 2017). This can take place via either a periodical assessment or an audit of the digital service quality based on specified criteria. Hence, both individual and organisational factors such as governance structure, stakeholder engagement, implicit and explicit knowledge management along with employees' well-being play equal parts in sustaining service performance. Specifically, this study takes a viewpoint of service providers' or back-office support mechanisms in sustaining the service quality. The enablers that are examined in this study will be further discussed in the following sections.

#### **2.2.4 Key Enablers in Sustaining Malaysian Public Sector Digital Service Quality: The Role of Organisational Intelligence and Employees' Well-being.**

An intelligent organisation is capable of making the right decision, as it ought to learn on how to fit into its environment and survive. In a similar context, the success of digital government initiatives requires an organisation with a strong governance structure and back-office support (Gupta et al., 2017; Hanna, 2016; Hooda and Singla, 2020). In other words, the role of service providers in constantly monitoring and assessing the digital service performance are the ultimate panacea for delivering quality services and ensuring organisations sustainability (UN, 2022). Two key enablers of digital service performance that this study looks into are the organisational factor, which is represented by OI traits and the individual factor, represented by employees' well-being.



#### **2.2.4.1 Organisational Factor: OI Traits**

Some of the challenges faced by the global and Malaysian public sector in embarking its' journey towards digitalising its public services include lack of skills on the emerging technologies among the service providers, legislation constraints and inadequate change management programs on digitalisation initiatives across the agencies (MAMPU, 2021a; UN, 2022). At the same time, it is important to note that approaches such as OI are regarded as enablers to ensure the sustainability of organisational capability in utilising data and information, leveraging technological and management tools along with mobilising the employees' brainpower (Akter et al., 2019; Albrecht, 2003; Archenaa and Anita, 2015; Curtis, 2019).

From the empirical stance, OI related studies in the Malaysian public sector were seen in the area of knowledge management initiatives, organisational learning culture, utilisation of business intelligence and big data technology. Earlier studies indicated that knowledge management practice in the Malaysian public organisation was still not encouraging (Khairil et al., 2015; Omar Sharifuddin and Rowland, 2004). Conversely, another study concluded that the level of knowledge management practices of Malaysia public organisations was at medium to high level (Norliya and Mohammad Fazli, 2016). It is also interesting to note that the Malaysian public sector employees were aware of the importance of knowledge sharing and collaboration with various stakeholders in line with the open public service landscape (Sandhu and Jain, 2011). This is further supported with the findings that learning organisation culture such as continuous learning, engagement with external environment and strategic leadership were perceived as high among academics in the public higher learning institutions (Norashikin et al., 2016). Besides, business intelligence tools and big data technology were also utilised to certain extent in some organisations to strengthen strategic and operational business activities as well as to aid decision making (Jamaiah et al., 2019; Jayakrishnan et al., 2018). Essentially, the role of central agencies as a strategic advocator, strategic designer, strategic capacity-builder, and strategic practitioners are regarded as critical enablers in creating learning organisation across the public service (Tam, 2006).

Today, the Government of Malaysia has also embarked on various OI-related initiatives at the national level to serve as guiding principles for all public service organisations. These are

aimed at promoting collaboration among agencies in terms of data and information sharing, setting up of key performance indicators at every level to measure public service performance, as well as building skill-centric public personnel to drive the national transformation agenda. Hence, the initiatives are literally embedded in several blueprints and corporate strategic plan. Each initiative is supported by a framework, methodology and governance structure. Table 2.7 below briefly describes some of the public sector’s initiatives relating to OI in enhancing organisational performance and service delivery.

**Table 2.7**

*OI related initiatives by the Government of Malaysia*

<b>OI-Related Initiatives</b>	<b>Description</b>
Guideline to Formulate Key Performance Indicators to Measure Public Organisation’s Performance (MAMPU, 2005)	To improve the quality of service delivery which involves a continuous cycle of measurement and assessment, monitoring, improvisation and review of the performance indicators.
Public Sector Big Data Analytics (BDA) Blueprint (MAMPU, 2017)	An initiative to improve the quality and speed of decision-making via utilisation of agencies’ data assets and integration with new source of data.
MyGovernment Enterprise Architecture Master Plan (MAMPU, 2015)	A blueprint to improve consistency of digital government service delivery through the convergence business strategy and ICT.
MyGDX (MAMPU, 2020a)	It is a centralised platform that enables the process of data sharing across public sector agencies in a structured and systematic way.
Innovative and Creative Group Circular (MAMPU, 2016)	This initiative is aimed at encouraging public service agencies to improve the efficiency of public service delivery via innovation and creativity approach.
e-Participation Platform (MAMPU, 2020b)	To promote transparency and citizen engagement in the policy development and decision-making process via ICT utilisation.

Despite numerous OI-related initiatives being planned out, there are many enabling factors to ensure the success of these initiatives. Some of the enablers outlined in the plans include digital governance structure, coordination and collaboration among stakeholders, change management initiatives, knowledge and skillset of the personnel. As such, this study incorporates various OI traits comprising strategic vision, decision-making, knowledge deployment and leadership, as to how they influence the digital government service quality.

#### **2.2.4.2 Individual Factor: Employees' Well-being**

Increasing pressure from the users for better and faster service delivery have indeed demanded the organisations to produce outcome with minimal time, effort and costs. Continuous pressure to produce more with less, particularly with technological advancement and computerization has been linked to 'ephemeralisation' and occupational stress (Fuller, 1997; McHugh, 1997; Myers, 2000). Even though the government allocates considerable amount of fund for digitalisation initiatives (Wong and Jackson, 2018), less priority is given to programmes that improve employees' well-being (Guest, 2017).

It is important to note that, occupational stress has been considered as a modern epidemic and a public health concern (Azlan et al., 2017). As a result, this will lead to organisational problems including less productivity and declined performance including in ICT-related industries (Beyza and Evenstad, 2018; Caverly, 2005;). In other words, when employees' do not perform at their best, the quality of the decision made and services provided will be affected (Kelloway and Myers, 2019). This is in accordance with the report issued by The Health and Safety Executive, United Kingdom (2018), which stated that 40% of work-related illnesses were linked to job stress which eventually affects the organisation due to issues such as absence, low productivity, and accidents at work.

Narrowing down to Malaysia's context, The National Health and Morbidity Survey 2017 reported that 1 in 5 Malaysian adolescents is depressed, whilst 1 in 10 experiences stress (Ministry of Health Malaysia, 2018). This is further supported by a study on the Malaysian public service personnel's psychological well-being, which indicates a moderate score of 6.5 as at November 2022 (Malaysian Public Service Department, 2022). In fact, one-third of the

Malaysian working population is linked to having experienced occupational stress (Kassim et al., 2018). Whilst technological aspects in delivering efficient public services have been an utmost priority, a study conducted among the Government of Malaysia's personnel indicates that occupational stress dimensions such as role ambiguity and role overload have a significant correlation with psychological well-being (Mohd Yunus and Mahajar, 2011). Besides, long working hours and constant pressure on career development have also been associated with stress (Azlan et al. 2018).

Hence, the main conception here is about finding the balance between job demands from workload and emotional demands along with resources such as career development, social support and job autonomy. When the balance is not achieved, the impact would be translated into burnout and stress among the employees. Therefore, the right management practice is an ultimate panacea in ensuring the ecosystems is conducive and mutually beneficial to both the employees and organisation, towards achieving its business goals (Schaufeli et al., 2009; Van de Voorde et al., 2016). With regard to this, it would be noteworthy to study the impact of various OI traits on job-related stress and eventually how it affects the digital government service quality in the public organisations.

## **2.3 Theories and Models Relating to Key Variables**

### **2.3.1 Digital Government Service Quality**

Service science emerged from multidisciplinary fields to drive innovation, co-production and co-creation of value (Ostrom et al. 2010). As such, there are theoretical foundations and relevant models from various perspectives that constitute service quality. The following sections discuss the evolution of theories and models in relation to digital government service quality in various contexts. Following this, the main theories and models that are pertinent to this study is discussed.

#### **2.3.1.1 Theories on Digital Government Service Quality**

Since determining the quality of service is significantly influenced by the users themselves, the underlying theories were founded primarily on cognitive-related theories, as well as

psychological and behavioural related theories (Ajzen, 2011; Kahneman and Tversky, 1979; MacCrimmon and Larsson, 1979). As such, behavioural theories such as the Theory of Planned Behaviour and the Theory of Reasoned Action have provided good bases for predicting service quality (Ajzen, 2011; Ajzen and Maden, 1986). In other words, users' perceived quality and satisfaction have been one of the bases of service quality measurement (Li et al., 2002; Olstavsky, 1985).

In addition to user-orientated perspectives, other theories from economic, marketing and public service perspectives have also complemented the existing literatures on service quality. According to Vargo and Lusch (2004), the earlier dominant logic about the exchange of goods has subsequently evolved into a revised service-centered logic known as 'Service Dominant Logic'. Unlike goods or products, the establishment and measurement of service quality faced difficulty due to the inability to measure, test and verify it prior to delivering services to the users (Zeithaml et al., 1988). Therefore, service quality is measured via performance that occurs during the delivery of the service. Besides, it also recognises the importance of knowledge as a fundamental source of competitive advantage, and the need to regard the customers as co-producer in its service logic.

Following this, the Public Service Dominant Logic was introduced to accommodate the service logic of the public service organisation in the NPG era (Osborne et al. 2012; Osborne et al., 2013). This logic recognises public services as 'services' involving inter-organisational operation. Generally, Osborne et al. (2013) postulated that there are four applications, namely strategic orientation, marketing public service, co-production and operation management with their respective propositions that serves as a basis for Public Service Dominant Logic. The element of co-production in the logic was later reconceptualised to co-creation in the value creating process in the service delivery via Public Service Logic (Osborne, 2018). On another note, scholars such as Sundbo (2015) have taken a different approach by replacing the quality-centric perspective with experience-oriented logic to gain better understanding of the service science via 'experience dominant logic'. Although this dominant logic was a promising approach brought into the service science avenue and questioned if 'experience' has actually replaced 'service quality' in characterising users' relationships within the service business (Sundbo, 2015), it is deemed more appropriate in demand-side orientated study. This study will be focussing on service quality from the supply side perspective, and hence

utilises the underlying principles of Public Service-Dominant Logic and Public Service Logic. These two logics are discussed in more detailed in the following section.

**a) The Public Service-Dominant Logic and Public Service Logic**

In principle, Public Service Dominant Logic (PSDL) is a significant paradigm that fits the nature of today's public service organisations and accommodates the public management theory in line with the NPG era (Osborne et al., 2013). The PSDL was introduced to primarily address two limitations in the non – PSDL approach (Osborne et al., 2013). These limitations were the failure to consider the inter-organisational nature of public service delivery and to acknowledge the public sector as a service. Following this, the seven-pointed 'SERVICE' framework was also introduced as a model that reflected long term sustainability of public service organisation. This framework was represented by the system, experience, engagement, co-production, relationships, innovation and value, aimed at addressing current challenges faced by the public service organisation in the NPG era (Osborne et al., 2015).

Following this, PSDL was reconceptualised from its original perspective of linear co-production to a dynamic value co-creation between public organisation and service users via the Public Service Logic (PSL). Contrary to PSDL that emphasised public organisations' dominance in the co-production process, PSL shifted the focus to co-creation in generating values at the nexus of dynamic interaction between organisations and users. Specifically, the PSL acknowledges the role of public service organisations to establish the service offerings and facilitate the value co-creation process (Osborne, 2018). PSL therefore implied that public service organisations and services are to be designed to facilitate the co-creation of value by service users, not vice versa.

The underpinning principles of PSDL and PSL are very much pertinent in the context of this study. In other words, it is they are in accordance with core ideas of this service logic which stresses the need to design organisations to facilitate co-creation of values by service users, utilisation of digital technology in generating and sharing information, as well as the importance of performance at every level in improving the service delivery (Osborne et al., 2014; Osborne, 2018). Nevertheless, PSL puts greater emphasis on service users as a starting

point of analysis, and thus relies upon the actions of service users than public service organisations in determining service quality. While this study also embeds the elements of stakeholder's engagement and organisation's alignment and culture that evolves with the changing demand of the users and environment, the service quality from service providers' (supply side) perspectives is the central idea of this study. As such, this study is more relevant to PSDL, in terms of its principles and contributions.

### **2.3.1.2 Digital Government Service Quality Models**

The previous sections have introduced theories and logic that have served as a foundation for service quality models. Based on the reviews of previous models, earlier models were primarily focussed on a) users' expectation and perception on services; b) actual performance of the service delivery; c) public service and non-public service d) non-digital and digital based service quality models and e) demand (service user) and supply (service producer) context.

Models based on (a) and (b) perspective are not directly related to the context of this study. However, they are the foundation for the most widely accepted models for measuring service quality: SERVQUAL and SERVPERF (Al Hakim and Maamari, 2017; Amin and Issa, 2008). SERVQUAL was developed based on the gap model which compares users' perceived expectations and perceptions on service quality upon receiving the services (Parasuraman et al., 1998). Criticisms of the SERVQUAL model were highlighted by scholars such as Babakus and Mangold (1992), Cronin and Taylor (1992) and Peter et al. (1992) for conceptualising perception and expectation as bases for service quality. Following this, the SERVPERF model was developed by emphasising the performance-based approach, in which service quality was measured as a long-term attitude. However, the SERVPERF model and scale still employed SERVQUAL's five dimensions (tangibles, reliability, responsiveness, assurance, and empathy) representing performance-based measurement (Cronin and Taylor, 1992). This is due to the strength of SERVQUAL model that is well supported by both its development procedures and adoption in other studies (Carman, 1990).

As this study takes an approach of service quality model from the digital public service organisations viewpoint that emphasises supply side context, service quality models pertinent to this study will be further discussed under section (a) to (c) below.

#### **a) Digital versus non-Digital Service Quality Models**

When the internet technology emerged in 1990s, the models for digital or electronic services were developed. This is when the new elements such as user interface of the system, website features and content quality were introduced to the existing service quality field of study (Ancarani, 2005; Grönroos, 2001). Another field which has been of great interest to researchers is the importance of trust in connection with digital transactions. (Auer and Petrovic, 2004). Interesting enough, models such as SERVQUAL are considered applicable in both traditional and digital environment setting. In fact, most researchers have used the SERVQUAL scale for studies on digital services too (Li and Suomi, 2009). At the same time, the SERVQUAL dimensions were used in digital service environment by including few technical dimensions (Lee and Lin, 2005; Zeithaml, 2002). Service quality models such as e-SERVQUAL, E-Quality and e-GovQual were developed for digital services context (Madu and Madu, 2002; Zeithaml et al., 2000), while SERVQUAL and SERVPERF were non-digital service models (Cronin and Taylor, 1992; Parasuraman et al., 1998).

#### **b) Supply Side versus Demand Side Service Quality Models**

It is also important to note that service quality has been assessed from both supply and demand side. Supply side represents internal perspective while demand side denotes external perspective (Bhuiyan 2011; Ishikawa, 1991). When these perspectives are put into the public service quality context, demand side models emphasise the relationship between government and citizens as well as businesses, while supply side models literally focus on the service delivery by the government (Scott and Golden, 2009). As such, the demand side studies are more interested to examine the association between service quality and user centric antecedents such as users' satisfaction, intention and loyalty (Cristobal et al, 2007; Lee and Lin, 2005; Najjar, 2019; Salah, 2019; Wong, 2019). Conversely, the supply side studies acknowledge the underlying basis to attain systemic qualities which include coordination and communication between departments, organisational culture and management support



(Curtis, 2019; Feldman, 1991; Hien, 2014; McDermott and Emerson, 1991; Min et al., 2015; Rose et al., 2019; UN, 2020; Wan Yusoff et al., 2010). Despite these differences, both supply and demand side share similar attributes which constitute the service quality such as attributes such as the functioning of the site, ease of use, information quality and security (Stiakakis and Georgiadis, 2009; Wan Yusof et al., 2010). The perspective from internal and external users' perception and expectation towards the service quality make the difference in this context.

Nevertheless, it is quite apparent that studies on demand based digital service is the norm in service science research domain (Cho and Menor, 2009). Hence, the quality of service is often studied using customer centric approach which focusses on the front office service delivery (Janssen and Olnes, 2016; Papadomichelaki and Mentzas, 2012). In other words, the supply side perspectives have not been given equal attention as much as the demand side in service quality research (Bhuiyan, 2011; Elsheikh and Azzeh, 2014; Stiakakis and Georgiadis, 2009). A better understanding of the supply side perspective of service quality is vital due to some valid reasons. Firstly, the quality of the internal services affects the performance of external services (Berry and Parasuraman, 1994). Secondly, the service providers can offer insights on system improvement from different perspectives due to their wide exposure on the systems and work process (Lai and Chen, 2009). Thirdly, the service providers are the ones who interact with the customer and system on daily basis. Hence, they have better understanding on the service limitations than the users themselves, including the occurrence of system breaking down (Lai, 2006).

To date, there are some of the service quality models which have been developed and applied in service provider's (supply side) context. These include INTSERVQUAL, e-Business-SERVQUAL and ASP-QUAL (Frost et al. 2000; Lai, 2006; Sigala, 2004). Other models such as SERVQUAL, SERVPERF, eTransQual and PeSQ were derived from users' (demand side) perspectives (Bauer et al. 2005; Cristobal et al., 2007; Cronin and Taylor, 1992; Parasuraman et al. 1988).

### **c) Government versus non-Government Digital Service Quality Models**

In early years, the dimensions of the service quality models were largely focussed on banking and retailing industries (Pinho and Macedo, 2007). Hence, some researchers contemplated whether digital government service model can adopt and adapt any of the other existing models of service quality (Broderick and Vachirapornpuk, 2002; Santos, 2003). Scholars such as Caudle et al. (1991) mentioned that the difference between the digital services offered by public sector in comparison to private sector is due less exposure to market sentiments, higher legal constraints and political influences as well as less autonomy in decision making among managers. Key dissimilarities between digital and non-government services are largely based on their purpose, as to what the digital services are aspired for. Firstly, the non-government digital service portals are designed to keep users stay on, for as much time as possible. This is not the case for the government digital service, which focusses on the completion of dedicated transaction in an optimum time (Kašubienė and Vanagas, 2007). Secondly, the government digital services do not put much emphasis on competition factor such as gaining users loyalty. This is primarily due to the nature of services that the government offers, which only require transactions as ‘one-off’ or at a fixed interval frequency.

Similar to private entities, the service quality models of the public service perspective measure the extent to which service portals enable the delivery of services efficiently to meet the users’ expectation. Most often, research on digital government service quality revolves around service quality, information quality and organisation quality (Hien, 2014). Additionally, it is important to note that elements such as transparency and openness as well as participation and engagement are the distinctive attributes of public organisation models (Karkin and Janssen, 2014; Lee-Geiller and Lee, 2019; UN, 2020). Hence, the government digital platforms are aimed at providing services at a faster and cheaper rate, than the traditional platform. Some of the service quality models developed to serve the need of public service organisations were e-GSQA, E-GovQual and UNEGDI (Papadomichelaki and Mentzas, 2012; UN, 2020).

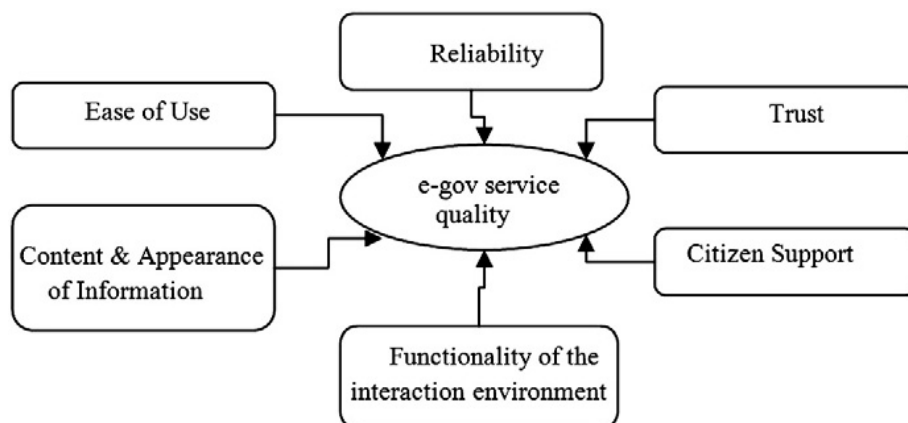
**d) e-GovQual Model: Digital Government Service Quality Model from Service Providers' Perspectives**

This study takes an approach to examine the quality of digital government services from supply side, focussing on back-office point of view. Specifically, it emphasises the service provider's perspective, as to whether assessment and monitoring of service quality are constantly carried out in meeting the users' needs. With regard to this, e-GovQual was used as a referral model to conceptualise service quality.

Generally, e-GovQual is an instrument developed by Papadomichelaki and Mentzas (2012) to measure citizens' perceptions of service quality from e-government sites or portals. e-GovQual adopted an approach of both website and e-service quality on the basis that the citizens that may use a governmental site for either obtaining information or service. The model and instrument were developed by focussing on the front office service delivery (Papadomichelaki and Mentzas, 2012). Nevertheless, they emphasised the importance of not to neglect the back-office processes such as monitoring and evaluation of e-government development which is not taken into consideration in e-GovQual model. The attributes were first arranged based on questionnaire phrased in SERVQUAL's format (Zeithaml et al., 1990) and was later conceptualised six key quality dimensions: Ease of Use, Functionality of the Interaction Environment, Trust, Content and Appearance of Information, Reliability and Citizen Support. and governmental websites. The earlier model is reflected in **Figure 2.1** below.

**Figure 2.1**

*E-GovQual Model*



Note. From "e-GovQual: A multiple-item scale for assessing e-government service quality" by X. Papadomichelaki and G. Mentzas, 2012, *Government Information Quarterly* 29 (2012) 98–109, 29 (2012), p. 98-109. (<https://doi.org/doi:10.1016/j.giq.2011.08.011>). Copyright 2011 by Elsevier Inc.

Based on the refinement, assessment and reliability testing made on the instrument, 21 quality attributes were classified under four quality dimensions: Reliability, Efficiency, Citizen Support and Trust. Essentially, e-service quality is a multidimensional construct, though the content of what constitutes e-service quality is very rich and varies across studies (Zeithaml et al., 2002; Jansen and Ølnes, 2016).

The list of existing service quality models built in the public and non-public organisations setting from both supply and demand side context are illustrated in Table 2.8. The frequently used dimensions used service quality models are summarised in Table 2.9.

**Table 2.8**

*Digital Service Quality Model Perspective in Government and Non-Government Organisation*

Service Quality Models	Author and Year	Supply/ Demand
<b>Non-Government Organisation</b>		
e-SERVQUAL	Zeithaml et al. (2000)	Demand
E-Quality	Madu and Madu (2002)	Demand
e-Service Quality	Santos, J. (2003)	Demand
E-Service Operations	Surjadjaja et al. (2003)	Supply
ASP-QUAL	Sigala (2004)	Supply
E-S-QUAL and E-RecS-QUAL	Parasuraman et al. (2005)	Supply
eTransQual	Bauer et al. (2005)	Demand
PeSQ	Cristobal et al. (2007)	Demand
Online Service Quality	Nusair and Kandampully (2008)	Demand
E-Service Quality	Stiakakis and Georgiadis (2009)	Supply
System Quality Dimensions	Cho and Menor (2009)	Supply
Sustainable e-Service	Stamenkov and Dika (2014)	Supply and

Quality Model		Demand
<b>Government Organisation</b>		
E-Business-SERVQUAL	Lai (2006)	Supply
e-Government Service Quality	Alanezi and Basri (2010)	Demand
e-GSQA	Zaidi and Qteishat (2012)	Demand
E-GovQual	Papadomichelaki and Mentzas (2012)	Demand
Website Evaluation Metrics	Karkin and Janssen (2014)	Demand
E-Gov Service Quality	Hien (2014)	Demand
Public e-services Quality	Jansen and Olnes (2016)	Demand
Local Online Service Index (UNEGDI)	UN (2020)	Supply

**Table 2.9**

*Digital Government Service Quality Dimensions*

<b>Dimensions</b>	<b>Sources</b>
Reliability	Alanezi et al. (2010); Hien (2014); Jiang and Ji (2014); Karkin and Janssen (2014); Karunasena and Deng (2012); Lee-Geiller and Lee (2019); Li and Shang (2019); Papadomichelaki and Mentzas (2012); Sá et al. (2016); Shareef et al. (2015); UN (2020)
Usability and functionality	Alanezi et al. (2010); Hien (2014); Jiang and Ji (2014); Jansen and Ølnes (2016); Karkin and Janssen (2014); Karunasena and Deng (2012); Li and Shang (2019); Papadomichelaki et al. (2006); Sá et al. (2016); Shareef et al. (2015); UN (2020)
Responsiveness and Customer Support	Alanezi et al. (2010); Hien (2014); Jansen and Ølnes (2016); Jiang and Ji (2014); Karkin and Janssen (2014); Karunasena and Deng (2012); Li and Shang (2019); Papadomichelaki and Mentzas (2012); Sá et al. (2016); Shareef et al. (2015); UN (2020)
Assurance and Trust	Alanezi et al. (2010); Hien (2014); Jansen and Ølnes (2016); Jiang and Ji (2014); Sá et al. (2016); Lee-Geiller and Lee (2019); Li and Shang (2019); Papadomichelaki and Mentzas (2012); Shareef et al. (2015); UN (2020)

Efficiency	Karunasena and Deng (2012); Papadomichelaki and Mentzas (2012); UN (2020)
Transparency and Openness	Karkin and Janssen (2014); Lee-Geiller and Lee (2019); Sá et al. (2016); UN (2020)
Accessibility	Karkin and Janssen (2014); Li and Shang (2019); Papadomichelaki et al. (2006); Sá et al. (2016); UN (2020).
Citizen Participation and Engagement	Karkin and Janssen (2014); Lee-Geiller and Lee (2019); Sá et al. (2016); UN (2020)
Top Management Support	Hien (2014)
External and Internal Communication	Hien (2014)
ICT Infrastructure	Karunasena and Deng (2012); UN (2020),

### 2.3.2 Organisational Intelligence

The theories underpinning Organisational Intelligence (OI) were derived based on broad ontological and epistemological perspectives. Essentially, organisational intelligence has long been associated with individual human intelligence by many researchers (Albrecht, 2003; Magala et al., 2007). Hence, processes that take place within the organisation are said to be analogous to activities within human brain (Matsuda, 1992). It is also important to note that OI emphasises people as the core driving force to run an organisation collectively and synergistically (Albrecht, 2003; Matsuda, 1992). As such, brainpower, motivation and sense of commitment from the people are crucial elements of intelligent organisation, which need to be effectively organised, engaged and amplified (March, 1999; Ocasio et al., 2020).

As OI is a multidimensional concept, constituted by both organisation- and employee-driven traits, it cannot be represented by one single theory, but by several theories involving both perspectives. For instance, at the individual level, Theory of Power Motivation (McClelland, 1975) and Individual Learning Theories (Bandura, 1971; Lewin, 1951; Piaget, 1936; Skinner, 1937) are deemed relevant as employees' social motivation and learning capacity play a part in constituting the OI concept. Similarly, organisational theories such as Knowledge Management Theory, Open System Theory and Organisational Learning Theory provide important foundations for understanding OI.

While all these theories are applicable in all types of organisations, OI in the public service organisation setting is well aligned with the New Public Governance paradigm (Stenvall and Virtanen, 2017). Specifically, NPG emphasises governance of processes and service effectiveness and outcomes in public service (Osborne et al., 2013). NPG along with other theories provides a clear conceptual framework to collectively represent OI in the context of this study that reflects the practice of today's public administration and management. Individual and organisation orientated OI theories that are pertinent to the study domain are discussed under sections 2.3.2.1.

### **2.3.2.1 Theories on Organisational Intelligence**

#### **a) Individual Oriented Theory: Theory of Power Motivation**

The motivational theory has evolved and taken many forms, reflecting the scientific paradigms and current focus (Forbes 2011). According to OI scholars such as Albrecht (2003), psychological factors shape people's behaviour in various patterned ways, be it in social or work situations. McClelland's Theory of Power Motivation describes power motivation in four different stages (McClelland 1975). The first stage concerns support and how we look upon others to empower and support ourselves. The second stage is autonomy, as we attempt to become our own source of power by strengthening ourselves. The third involves assertion, as in having impact and influence on other people by withholding favours, offering rewards and other methods. The final stage focusses on togetherness, where selfless power from a higher source inspires us to serve and influence others. In addition, McClelland (1961) examined three motives represented by 'needs for achievement', 'affiliation', and 'power'. However, the limitation of McClelland's theory in terms of its narrowness of scope in social interaction was highlighted by Forbes (2011), which led to a development of a unified theory.

The relevance of McClelland's Theory of Power Motivation to conceptualisation of OI is apparent as OI is about empowering and maximising human capital within the organisation. For instance, the need for affiliation is vital as an intelligent organisation requires people to have harmonious relationships with others, as well as the need for approval from others

(McClelland, 1961). Similarly, the need for power is equally important, as it concerns having the autonomy to direct others and having institutional or social power to organize others on behalf of the organisational interest (Winter, 1973). Additionally, people in a competitive environment tend to distinguish themselves from one another by their need for achievement, that is a strong aspiration to assume personal responsibility, to set and achieve moderately tough goals, as well as to receive performance feedback (Dencker et al., 2019; McClelland, 1961, 1985). All these elements are vital elements of human capital in an OI context as intelligent organisations are driven by leaders, managers and their employees towards achieving their goals and missions.

#### **b) Organisation Oriented Theory: New Public Governance Paradigm and Knowledge Management Theory**

While most OI-related theories address organisation in a more general perspective, the New Public Governance (NPG) paradigm puts OI in relation to the public service organisation setting (Stenvall and Virtanen, 2017). Having evolved from the New Public Management, NPG emphasises governance of processes, service effectiveness and outcomes (Osborne et al., 2013). NPG also focusses on inter-organisational relations and co-production in public service delivery (Bovaird, 2005; Pestoff, 2006; Pestoff and Brandsen 2010; Vargo and Lusch, 2008). Thus, NPG is regarded as an open system, as it emphasises networks and collaboration between actors from different agencies (Dickinson and Glasby 2010; Stenvall and Virtanen, 2017; Sullivan and Skelcher 2002). All in all, NPG provides a clear conceptual framework to serve the theory development and research that can inform the practice of public administration and management in the twenty-first century.

On the other hand, Knowledge Management theory emphasises processes within the organisation, involving management of creation, storage, access and dissemination processes of the intellectual resources of an organisation (Song et al., 2007). Organisational knowledge is classified as explicit and tacit knowledge (Nonaka et al., 2000). Explicit knowledge is represented by the knowledge that has been articulated, codified and stored on certain platforms (Greiner et al, 2007). On the other hand, tacit knowledge is often embedded in experience and actions as well as values and emotions of an individual (Nonaka and Konno, 1998). Essentially, the organisational knowledge creation theory suggests that new



knowledge is created through the conversion of tacit and explicit knowledge, namely socialisation, externalisation, combination and internalisation (Erden et al., 2008; Nonaka et al., 2000). The link between knowledge management and OI is apparent, as highlighted in past studies. OI scholars such as Halal (1998) stressed that knowledge management is one of the cognitive subsystems that constitute OI together with other subsystems, namely organisational structure, strategic process and organisational culture.

In short, the NPG paradigm provides a pertinent foundation in setting OI in the context of today's public service delivery. Complementing this, Knowledge Management theory describes one of the essential aspects of OI, as it explains how internal and external information is acquired alongside the process of knowledge creation and decision-making (Cruz and Dominguez, 2007).

### **2.3.2.2 OI Models**

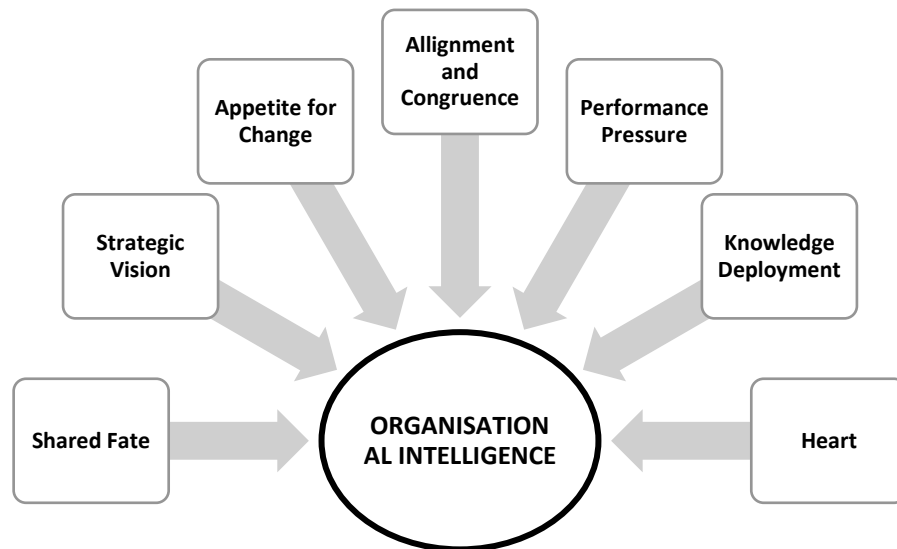
OI models were built upon relevant theories and empirical basis that have been validated in various organisational setting (Falletta and Combs, 2018). While most of the models were founded on general organisation setting, few other models have reflected the context of public organisations. In terms of the model composition, most of the models were constituted by traits or features that can either be internal or external organisational elements elements. At the same time, some models have incorporated OI antecedents with organisation processes (Travica, 2015; Virtanen and Vakkuri, 2015).

One of the most commonly used generic OI model is the one proposed by Albrecht (2002), who described an organization's level of intelligence in terms of seven key dimensions that comprises both employees and organisation orientated traits (Figure 2.2). Various concepts, theories and case studies across multiple disciplines including human motivation, leadership and multiple intelligence served as bases for the model (Albrecht, 2003; Bennis, 1989; Gardner, 2013; Mclellan, 1995). Albrecht's model is widely accepted and utilised in OI research as diagnostic tools (De Angelis, 2013; Zarbakhsh et al., 2011), as it offers greater insights on organisation's viability and embeds essential aspects of intelligence in the model (Bratianu, 2009; Carson, 2003; Sessa, 2004; Stulova and Rungi, 2017; van Driel and

Gabrenya, 2012). However, OI researcher such as Stalinski (2004) suggested that the model does not explicitly indicate essential elements including human potential, creativity, culture and innovation.

**Figure 2.2**

*The OI Model*



*Note. Adapted from " The Power of Minds at Work: Organizational Intelligence in Action, by K. Albrecht, 2003, USA: American Management Association (AMACOM). Copyright 2002 by AMACOM.*

Other generic OI models include Falletta’s (2008) model that depicts 11 variables or factors such as environmental inputs, leadership, culture, information and technology, growth and development. Unlike Albrecht’s model, Falletta’s model illustrated interrelation among the variables and depicted a top-down causal chain. His model is very much similar to the Burke-Litwin Model (Burke and Litwin, 1992), which adopted cause and effect relationship.

Narrowing down to the public sector context, there are very limited OI models constructed to reflect public organisations as an intelligent organisation. One of those models discovered was the model comprising six (6) public sector organisational features generating OI which are incorporated with OI processes to facilitate its service delivery implementation (Stenvall and Virtanen, 2017). Generally, it describes the process starting from development and

analysis of the needs of service users to the final steps of factual decision-making for service delivery.

On the other hand, Schmidt (2015) expanded the scope of OI models in the context of public sector by proposing model to implement a practical foresight function. Specifically, organisational policy, planning and intelligence functions are incorporated with the foresight functions, aimed at facilitating the process of organisational decision making. Nevertheless, the intelligence functions here are not depicted in a form of traits or antecedents as demonstrated in other models.

List of OI models in the public and non-public service organisation context are presented in Table 2.10.

**Table 2.10**

*OI Models in the Public and Non-Public Service Organisation Context*

<b>OI Models</b>	<b>Author and Year</b>
<b>Non-Public Service Organisation</b>	
Weisbord's Six-Box Model	Weisbord (1978)
Model of Org. Performance and Change	Matsuda (1992)
The Causal Model of OI	Burke and Litwin (1992)
Framework for the Design of Intelligent Organizations	Schwaninger (2001)
Nine principles of the Smart Organization	Matheson and Matheson (2001)
OI Model	Halal (2002)
The Inherent Structure and Dynamic of Intelligent Human Organizations	Liang (2002)
OI Model	Albrecht (2003)
Strategic Model of Intelligence (PPP model)	Dealtry (2004)
The model of social community intelligence	Yolles (2005)
OI Model	Cronquist (2006)
OI Model	Falletta (2008)
High Performing Organisation Scores Model	Blanchard (2010)
OI Business Logic Model	Silber and Kearny (2010)

OI Model	Travica (2015)
<b>Public Service Organisation</b>	
Knowledge Management-OI Model	De Angelis (2013)
Integrated OI Model	Schmidt (2015)
OI Model	Stenvall and Virtanen (2017)

In terms of model compositions, these OI models are made of multiple dimensions, depending on the theories and context they were built upon. Most often, dimensions such as organisational direction setting, structure, culture and knowledge deployment constitute OI models (Albrecht, 2003; Blanchard, 2010; Burke and Litwin, 1992; Cronquist, 2006; Falletta, 2008; Halal, 2002; Stenvall and Virtanen, 2017; Schwaninger, 2001; Travica. 2015). Models that were developed to serve the public sector context will include elements such as stakeholder relationship (Halal, 2002; Stenvall and Virtanen, 2017). Various dimensions used in OI models are tabulated below.

**Table 2.11**

*Dimensions of OI Models*

<b>Dimensions</b>	<b>Sources</b>
Leadership	Blanchard (2010); Burke and Litwin (1992); Falletta and Combs (2008), Halal (2002); Schwaninger (2009); Stenvall and Virtanen (2017); Weisbord (1978)
Strategic Vision	Albrecht (2003); Burke and Litwin (1992); Blanchard (2010); Cronquist (2006); De Angelis (2013); Falletta (2008); Halal (2002); Matheson and Matheson (2001); Schwaninger (2001, 2009); Silber and Kearny (2010); Stenvall and Virtanen (2017); Yolles and Fink (2011); Weisbord (1978)
Appetite for Change/ Organisation Culture	Albrecht (2003); Blanchard (2010); De Angelis (2013); Dyduch and Bratnicki (2016); Falletta (2008); Matheson and Matheson (2001); Schwaninger (2009); Travica (2015);
Alignment and Congruence	Albrecht (2003); Blanchard (2010); Burke and Litwin (1992); Cronquist (2006); De Angelis (2013); Falletta (2008); Halal (2002); Matheson and Matheson (2001); Schwaninger (2001, 2009); Silber and Kearny (2010); Stenvall and Virtanen (2017); Travica (2015); Weisbord (1978)
Performance Pressure	Albrecht (2003); Blanchard (2010); Burke and Litwin (1992); Cronquist (2006); Falletta (2008); Halal (2002);

	Schwaninger (2001); Stenvall and Virtanen (2017); Travica (2015)
Knowledge Deployment	Albrecht (2003); Blanchard (2010); Cronquist (2006); Dydych and Bratnicki (2016); De Angelis (2013); Falletta (2008); Halal (2002); Stenvall and Virtanen (2017); Travica (2015)
Heart/ Work Commitment and Engagement	Albrecht (2003); Burke and Litwin (1992); Falletta (2008); Schwaninger (2009); Stenvall and Virtanen (2017); Yolles and Fink (2011)
Shared Fate	Albrecht (2003); Burke and Litwin (1992); Cronquist (2006); Falletta (2008); Halal (2002); Schwaninger (2001, 2009); Weisbord (1978); Yolles and Fink (2011)
Motivations and Rewards	Cronquist (2006); Falletta (2008); Weisbord (1978)
Stakeholder Relationship	Halal (2002); Silber and Kearny (2010); Stenvall and Virtanen (2017)

### 2.3.3 Occupational Stress

#### 2.3.3.1 Theories on Stress and Occupational Stress

Stress is perceived as a concept, that has credibility within positivist and phenomenological epistemology (Clegg, 2001). Generally, views and support from postmodernist literature and phenomenological research methodologies recognises individual experience of stress and coping as a legitimate source of knowledge. For instance, phenomenological view of ‘stress’ was characterised by Benner and Wrubel (1989) based on the individual's grasp of the meaning of the condition and their judgement about threat, challenges or harm. From the positivist perspective, Seyle (1956)’s work was one of the earliest studies in the field of biophysical research, involving the correlation test between stress and illness.

Nevertheless, positivism and phenomenological often criticise each other’s views on how understanding of ‘stress’ is derived. Essentially, the qualitative and subjective methodologies on ‘stress’ concept used by postmodernists were rejected by positivists, for its lack of visibility by the ‘objective’ society (Liashenko, 1998; Marks-Moran, 1999). Conversely, the scientific view of legitimate knowledge composition was challenged by postmodernist epistemology, stating that the devaluation of knowledge gained from oral practice by science,

disregards both the knowledge along with the value of that knowledge source (Liashenko, 1998).

There are many theories of stress which addressed the importance of both an individual and environment in understanding the concepts and consequences of stress (Edwards et al., 1998). Earlier literatures were primarily originated from the James-Lange Theory of Emotion (Cannon, 1987), Transactional Theory (Lazarus and Folkman, 1966) and The Person-Environment Fit Theory (Caplan 1983, 1987). The Transactional Theory (Lazarus et al. 1966) and the Conservation of Resources Theory (Hobfoll, 1989) were the most influential and important theories in understanding stress. More recent theory was emerged in 2004, known as the Cognitive Activation Theory of Stress (CATS), which is an extension of cognitive appraisal models (Ursin and Eriksen, 2004). Theories such as the Job-Demand Resources Theory emerged in 2011 from the Job-Demand Resources Model which explain how job demands and resources affect job stress and motivation of the employees, and thus becomes one of the widely applied job stress models (Bakker and Demerouti, 2014).

Essentially, the Job-Demand Resources Theory is very much prevalent in this study context, not solely due its relevance in organisation and work-related setting, but also in relating to OI context. Essentially, the inter-relatedness between OI traits and occupational stress are well represented by the job demand and resources, as to how it is impacting the employees' stress at work. Details on this theory is explained further in the following section.

#### **a) The Job-Demand Resources Theory**

The Job-Demand Resources (JD-R) Theory was derived from a mature version of the JD-R Model (Bakker and Demerouti, 2017) and built upon other theories such as the early Burnout Model (Lider, 1993), Stress Model (Selye, 1976), Demand-Control Model (Karasek, 1979) and the Conservation of Resources Theory (Hobfoll, 2001). It is one of the leading job stress models (Schauffeli and Taris, 2014) that explains how job demand and resources have various impacts on job stress and motivational level of the employees (Bakker and Demerouti, 2014).

Generally, job demand is defined as physical, social, psychological or organisational aspects of the job that requires physical and psychological effort which are linked to physiological and/ or psychological cost (Demerouti et al., 2001). This includes high job pressure and demanding interaction with clients. On the other hand, job resources are associated with physical, sociological and organisational aspects of the job that facilitates in accomplishing goals, minimising job demands and improve personal growth and development, such as autonomy, and performance feedback (Bakker, 2011; Bakker and Demerouti, 2007).

While the original JD-R Model perceives job design from a top-down perspective with reactive employees (Hackman and Oldham, 1980), bottom-up approach takes place when employees proactively take initiatives to change the status quo, optimising work environment and thus, stay motivated. This approach is termed as ‘job crafting’, which contributes to a new addition the earlier propositions of the JD-R Theory (Bakker and Demerouti, 2017). In 2020, they expanded the model further by justifying how job strain is translated into severe job burnout. Fundamentally, when employees have restricted access to constant organisational resources and have limited personal resources, they are more prone to experience build-up of job strain and heightened risk of burnout (Bakker and de Vries, 2021). Hence, few coping mechanisms and practical implications were highlighted for the prevention and reduction of burnout among employees.

Despite wide acceptance of JD-R Theory, some scholars challenged that the theory emphasises the role of job demand solely on the health impairment. Therefore, scholars such as LePine et al. (2005) suggested that motivational role of job demand should also be taken into consideration too. Essentially, they proposed two types of job demands, namely ‘hindrance job demand’ and ‘challenge job demand’. The ‘hindrance job demand’ such as role conflict, role overload and role ambiguity involve undesirable constraints that hinders employee’s ability to accomplish goals (Cavanaugh et al., 2000). Conversely, ‘challenge job demand’ such as high-level workload, time pressure and responsibility are referred to as demands that requires effort but at the same time promote employee’s growth and achievement (Podsakoff et al., 2007).

Interestingly, the flexibility and heuristic nature of JD-R Theory has led to ambiguities among practitioners (Bakker and Demerouti, 2017). In fact, the focus of this study is in-tune with the concerns raised by the scholars of the JD-R Theory. For instance, more studies were required on the specific job's characteristic, as to whether it represents a demand or a resource, or whether an outcome is of a health-related or motivational nature. Similarly, it is worthwhile to examine if job demand can act as challenge or hindrance demand and also causality between the components in the theory at different level of the organisation (Bakker and Demerouti, 2017).

### **2.3.3.2 Occupational Stress Models**

Research on stress and occupational stress are often steered by various models (Ganster and Rosen 2013; Shea and De Ciere, 2011; Shukla, 2016). According to Parker and Decotiis (1983), studies on stress are primarily based on three perspectives: individual differences, environmental factors, and some combination of the two. Another scholar, Shea et al., (2011) postulated that there are few approaches that can be considered in understanding stress at workplace including, direct measurement to associate experienced stress to job design or workplace conditions, general measurement of stress that does not necessarily associate the cause of stress to the workplace and via manifestation of the stress itself such as burnout.

When it comes to dimensions and scales, they generally consist of scales with perceived and objective measures of stressful events. In this sense, both measures have its pros and cons, depending on the context of its usage and setting. Generally, the objective measurement scale allows estimation of heightened risk for disease linked with the incidence of easily recognisable events, and thus minimize the likelihood of multiple subjective biases in the perceptions and reporting of events (Cohen et al., 1983). Nevertheless, the objective measures of stress suggest that events are the triggering source of pathology and illness behaviour. Hence, this implication is opposed to the view that individuals actively interact with their environments, appraising possibly threatening or challenging events with regard to the available coping resources (Lazarus, 1966, 1977).



In other words, it gives the impression that stressor effects only transpire when an individual appraises the condition as demanding or rather threatening and has inadequate available resources to cope with it (Lazarus, 1977; Mason, 1971). Therefore, perceived stress is referred to as an outcome variable-measuring the level of stress as a function of objective stressful events, personality aspects and coping processes (Cohen et al., 1983). On another note, the combination of both the perceived stress scales and objective scales can be utilised to determine how factors such as social support (Pearlin et al.,1981), self-assurance (Kobasa, 1979), and locus of control (Johnson and Sarason, 1979) can guard individuals from the impact of stressful events, via the modification of stressor appraisal or the process of which the appraised stress causes physiological or behavioural ailments (Gore, 1981). This study adopts the Organisational Model of Stress (Parker and Decotiis, 1983) to measure perceived stress at workplace which is discussed in detail in the following section.

#### **a) The Organisational Model of Stress**

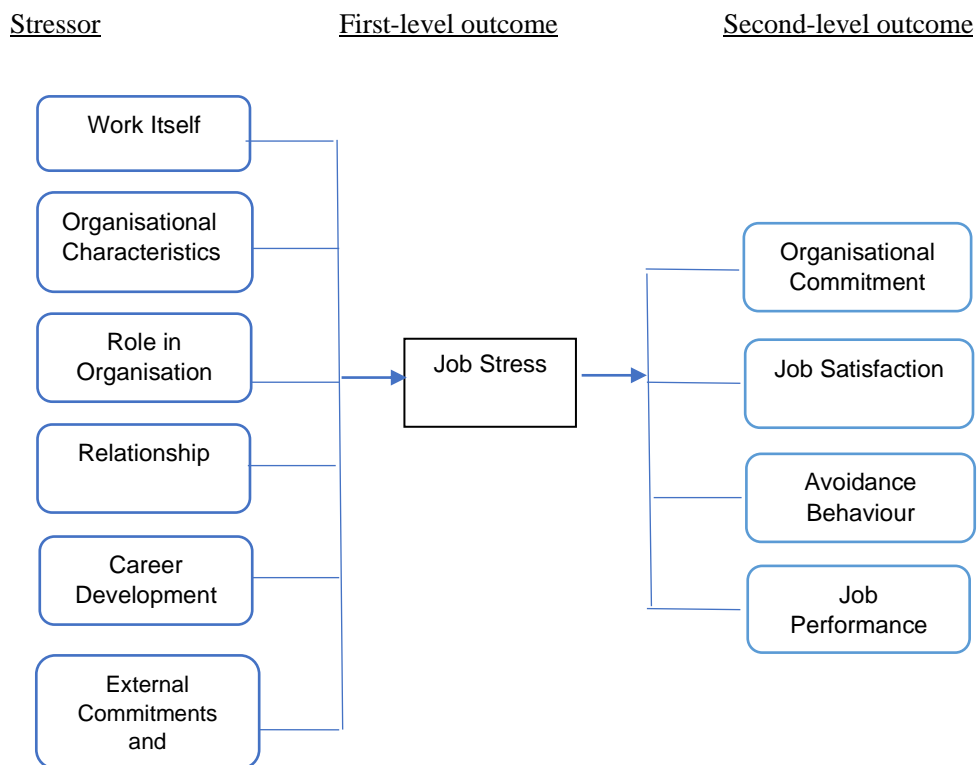
The model of job stress was introduced by Parker and Decotiis (1983) to address the lack of empirical research on stress at workplace. Parker and Decotiis (1983) posited that job stress is referred to as the first-level outcome or feeling that present or absent upon long-term deviations from normal routines. They further elaborated that the stress will be dissipated once the individual successfully copes with it or upon removal of the stressor in this instance. Therefore, it will not lead to any second-level outcome, such as decline in performance and commitment at work. In short, the impact of job stress towards the second-level outcome is influenced by its intensity, duration, number of operative stressors and ability to dissipate it. The underlying theories for the development of this model include Theory of Cognitive Dissonance (Festinger, 1957) and Person-Role Fit Theory (French, 1974).

The Organisational Model of Stress proposed by Parker and Decotiis (1983) comprises the stressors, first level outcome and second-level outcome (Figure 2.3). The stressors are grouped into six categories and claimed to be similar to the one discussed by Cooper and Marshall (1976) and Ivancevich and Matteson (1980). It differs as in it focused on organisational level, as opposed to individual differences as a moderator of the stressor and job stress relationship. The first-level outcome in their model is described as stress, while the second-level outcomes are referred to as the consequences resulted from stress at both

individual and organisational context. It is interesting to note that this model is capable to connect all the variable and demonstrate the linkages between all the three variables of this study to certain extent. Specifically, OI traits can be perceived as the stressors, whereas occupational stress is characterised as the first level outcome. The impact on digital service quality is represented as the second level outcome of this model represented by job performance. Figure 2.3 illustrates the Parker and Decotiis’s (1983) model and its components. They asserted that the stressors are related to either one of the job stress types, but not both. Similarly, job stress leads to second-level outcomes, at times but not during the entire time.

**Figure 2.3**

*The Organisational Model of Stress*



*Note.* From “Organizational Determinants of Job Stress” by D.F. Parker and T.A. Decotiis, 2004, *Organizational Behavior And Human Performance*, 32, p. 166. ([http://dx.doi.org/10.1016/0030-5073\(83\)90145-9](http://dx.doi.org/10.1016/0030-5073(83)90145-9)). Copyright 1983 by Academic Press, Inc.

Following this, the Job-Stress Scale was derived, comprising 13 items. Two main components make up the scale, which are represented by ‘time stress’ and ‘anxiety’. The ‘time stress’ component emphasises the feelings of being under significant time pressures,

whereas the ‘anxiety’ component relates to work-related feelings of anxiety. This scale is one of the most widely used instrument in empirical studies relating to performance at work (Beehr, 1998; Lepine et al., 2005; Shukla and Srivastava, 2016). At the same time, its limitation was also reported, as it is deemed less extensive in comparison with other scales such as Workplace Assessment Stressors Questionnaire (Mahmood et al., 2010; Shea and De Cier, 2011). Various scales and dimensions in relation to stress and occupational stress are tabulated in Table 2.12 below:

**Table 2.12**

*Stress Scales and Dimensions*

<b>Stress Measurement Scale</b>	<b>Target Group</b>	<b>Dimensions and Items</b>
Job Stress Scale (based on the Model of Job Stress, Parker and DeCotiis, 1983)	Working population	2 dimensions: <i>Time Stress, Anxiety</i> (13 items)
Job Demand and Control Measure (Jackson et al., 1993) - based on Job Demand-Control Model (1979)	Working population	5 dimensions: <i>Timing control, Method control, Monitoring demand, Problem solving, Production responsibility</i> (22 items)
General Health Questionnaire (Goldberg and Williams, 1991)	General Population	1 dimension: <i>General health questions</i> (12 items)
The Perceived Stress Scale (Cohen, S., 1994)	General Population	1 dimension: <i>Perception of stress</i> (10 items)
Job Stress Survey (Spielberger and Vagg, 1999)	Working population	3 dimensions: <i>Job Stress Severity, Job Stress Frequency and the Job Stress Index.</i> (30 items)
Pressure Management Indicator (Williams and Cooper, 1998)	Working population	3 broad dimensions: <i>Effects of pressure, Sources of pressure, Individual differences</i> (120 items)
An Organizational Stress Screening Evaluation Tool (Cartwright and Cooper, 2002)	Working populations	2 dimensions: <i>Physical health, Psychological well-being.</i> (19 items)

*(The Health subscales of ASSET 2002)*

The Job Demands-Resources Scale (Jackson and Rothmann, 2005)  - based on Job Demand-Resources Model (2001)	Working populations	14 dimensions: <i>pace and amount of work, mental load, emotional load, variety in work, opportunities to learn, independence in work, relationships with colleagues, relationship with immediate supervisor, ambiguities regarding work, information, communications, participation, contact possibilities, uncertainty about the future, remuneration and career possibilities.</i> (48 items)
Job Stress (Lambert, Hogan, Camp and Ventura, 2006)	Working population	1 dimension: <i>Job Stress</i> (5 items)
Workplace Stressors Assessment Questionnaire (Mahmood et al., 2010)	Working Population	6 Dimensions: <i>Demand, Control, Support, Role, Rewards, Relationship</i> (22 items)
General Measure of Work Stress (Yankelevich et al., 2011) <i>Based on the Appraisal Model (1966)</i>	General Population	1 dimension: <i>General job stress</i> (15 items)

## 2.4 Theoretical Background and Hypotheses Development

### 2.4.1 Hypotheses Development Approach

Hypotheses development for testing mediation effects have been articulated by many scholars including Rungtusanatham et al. (2014) who suggested two approaches for the hypotheses development, namely transmittal and segmentation methods. In the case of simple mediation framework, transmittal approach only requires one hypothesis, stating the mediating variable (M) mediates the relationship between the independent variable (X) and dependent variable (Y). On the other hand, segmentation method comprises three hypotheses to test the effect of X on M and M on Y, as well as the effect of M on the relationship between X and Y. This approach clearly excludes the need of testing the effect of X on Y, as recommended earlier by Barron et al. (1986). This is primarily due to views from more recent studies that discourage the use of his approach, as it is believed to violate the fundamental principle of parsimony and thus lead to testing of models that are not in line with the theory (Aguinis et al., 2016; Memon et al., 2018; Rungtusanatham et al., 2014).

Therefore, this study adopted segmentation approach in testing the mediation effect in the proposed research framework. In this sense, it assessed all the three hypotheses as recommended by Rungtusanatham et al. (2014). Therefore, this study was steered by three main hypotheses (H1 to H3), comprising 23 sub-hypotheses to address the research questions and objectives.

The theoretical background and formation of respective hypotheses are discussed in the following section.

## **2.4.2 OI in relation to Occupational Stress**

Pursuit of efficiency has become an ultimate norm for most public and private organisations today. Mixed responses were observed in the previous studies on the association between OI practice and occupational stress. For instance, organisational approaches such as the high performing work system (HPWS) practices were proven to heighten employees' autonomy, skills, knowledge, motivation and opportunity to excel, leading towards overall enhancement performance and well-being (Pak and Kim, 2018; Shin and Konrad, 2017; Zhang and Morris, 2014). Conversely, some other studies suggested that these management practices did not actually serve any purpose to enhance the well-being of the employees, but rather focussed on achieving organisational performance goal (Ogbonnaya, 2019). While HPWS was originally aimed at enhancing employee's performance by heightening employees' knowledge, skills and abilities, the positive effects tend to deteriorate upon intensification of the practices (Han et al., 2020).

Since there have been mixed responses from previous research studies on the association between OI and occupational stress, there was no basis to indicate the direction of hypothesis between the two variables (Sekaran and Bougie, 2010). Since it was unclear as to how OI traits will collectively influence occupational stress, non-directional hypothesis was formulated as below:

**H1: OI traits significantly influence occupational stress among the service providers**

The influence of various OI traits on occupational stress was also examined in this study. Eight OI traits were identified to represent the OI construct. Since OI is a multidimensional construct driven by employees and organisation driven traits, the formulation of hypotheses for this study will be based on these categorisations.

#### **2.4.2.1 Employee-Oriented Traits on Occupational Stress Among the Service Providers**

Employee oriented OI traits are characterised by elements such as individual trust, motivation and commitment towards accomplishing organisation's goals synergistically and collectively. Therefore, employee-oriented OI traits are represented by 'Performance Pressure', "Shared Fate' and 'Heart'. Based on the theoretical foundation and past studies, these traits demonstrated mixed outcome on occupational stress as it is highly dependent on individual's social motivation, learning capacity, sense of commitment and engagement with their job (Albrecht, 2003; Bandura, 1971; McClelland, 1975). Therefore, a non-directional hypothesis was formulated.

##### **H1a: Employee-Oriented OI traits significantly influence occupational stress among the service providers**

The influence of each employee-oriented OI trait on occupational stress is discussed in the following sections.

##### **a) Performance Pressure Trait on Occupational Stress Among the Service Providers**

Performance pressure element such as effort-reward system, role conflict and performance-based pay were found to yield mixed outcome on employees' stress and burnout level. For instance, compensation scheme, performance-based pay and supervisors' support demonstrated significant but negative correlation with employees 'time stress' level (Parker and Decotiis, 1983). Surprisingly, the same study reported that recognition and role conflict in the organisation were insignificant in their correlation with 'time stress'. Parker and Decotiis (1983) also reported insignificant association between recognition, compensation scheme and closeness of supervision with 'anxiety' level among employees.

Conversely, role conflict, role overload and intensified work system signified positive correlation with anxiety, fatigue and stress among the employees (Boxall and Macky, 2014; Jensen et al., 2013). Other elements such as role clarity, performance-based pay and supervisors' support showed insignificant correlation with the anxiety level in earlier study (Parker and Decotiis, 1983; Wood et al., 2019). Various outcome on the link between performance pressure and occupational stress in previous studies have prompted the inclusion of non-directional hypothesis in this study.

*H1a1: Performance Pressure significantly influences Occupational Stress among the service providers*

#### **b) Shared Fate Trait on Occupational Stress among the Service Providers**

Shared fate is an employee-centred element, as it reflects their feeling or perception of togetherness and commitment towards the organisation. Hence, employees with higher trait or values of its kind would have led to positive outcomes on employees' well-being (Sree Lekshmi, 2020). Similarly, the level of trust toward management was associated with techno-distress level (Rodriguez and Choudrie, 2021). Nevertheless, the element of trust towards management was also found to have no significant relationship with both 'time stress' and 'anxiety' (Parker and Decotiis, 1983). The same study also demonstrated that interpersonal relationship such as cohesiveness within organisation was negatively associated with 'time stress' among employees. The link between the two variables is apparent based on past studies, despite being inconsistent in its outcome. Hence, the influence of shared fate on occupational stress was incorporated into this model.

*H1a2: Shared Fate significantly influences Occupational Stress among the service providers*

#### **c) Heart Trait on Occupational Stress among the Service Providers**

Heart trait denotes the willingness of the employee to give more than expected in accomplishing organisation's mission (Albrecht, 2002). Hence, increasing employees' organisational citizenship was found to decrease burnout levels among employees (Yusuf and Ayse Sezin, 2013). It is also interesting to note that employees engaging in citizenship

behaviours, as in personal initiatives or sacrifices were said to be more likely to experience emotional exhaustion (Potipiroona and Faerman, 2020).

The ‘heart’ element is also influenced by the employees’ optimism towards management, in terms of career growth and work-life balance. Parker and Decotiis (1983) concluded that time spent at work had a significant and positive correlation on both ‘time stress’ and ‘anxiety’. Conversely, the same study also asserted that heightened concern for employees lowered both ‘time stress’ and ‘anxiety’, while trust towards management had a non-significant association with both dimensions of occupational stress. At the same time, the relationship between the organisation and peer support demonstrated a significant association with organisational stress (Riezebos and Huisman, 2021; Wood et al., 2019). Hence, the link between heart and occupational stress was included in this model to further understand its outcome in the public sector setting.

*H1a3: Heart significantly influences Occupational Stress among the service providers*

#### **2.4.2.2 Organisation-Oriented OI Traits on Occupational Stress Among the Service Providers**

Organisation oriented traits are reflected by elements such as leadership, organisation structure and culture that drive the innovation and success of the organisation. Hence, OI traits such as ‘Strategic Vision’, ‘Alignment and Congruence’, ‘Leadership’ and ‘Appetite for Change’ are classified as organisation-oriented traits in the context of this study. Similar to employee traits, organisation-oriented traits have also shown various impact on occupational stress in the past literature. In other words, leadership style, organisation learning culture, and delegation of power in decision-making and goal setting process would influence occupational stress in different ways (Boxall and Macky, 2014; Han et al., 2020; Ogbonnaya, 2019; Parker and Decotiis, 1983). Therefore, a non-directional hypothesis was formulated as follows.

**H1b: Organisation-oriented OI traits significantly influence occupational stress among the service providers**



This study also considers each trait under organisation-oriented OI traits to further examine the influence of these elements on occupational stress among service providers.

**a) Strategic Vision Trait on Occupational Stress among the Service Providers**

Organisational processes such as continuous reforms and top-down decision-making approach had been linked to stress and burnout among employees (Montgomery et al., 2013). Conversely, clear expression of organisational strategic vision and higher involvement of employees in decision-making process were reported to contribute to lower level of job stress (Boxall and Macky, 2014; Sree Lekshmi, 2020). This conflicts with the findings of the study by Ogbonnaya (2019) and Wood al. (2012) who asserted that high-involvement management practice was associated to an increased level of anxiety among employees. As a result of mixed outcome from previous literature, it is important to understand how strategic vision trait in an intelligent organisation affects occupational stress among service providers.

*H1b1: Strategic Vision significantly influences Occupational Stress among the service providers*

**b) Appetite for Change Trait on Occupational Stress among the Service Providers**

Organisational culture, as in the desire to transform and innovate were found to play a role on employees' psychological well-being too (Riezebos and Huisman, 2021; Wood et al., 2019). Organisations with vertical hierarchy and low innovation drive were asserted to have caused increased techno-distress level among employees (Rodriguez and Choudrie, 2021). Similarly, Sree Lekshmi (2020) emphasised the importance of efficiency, effectiveness and innovation in problem solving, which helps to create a positive impact on employees' well-being. Surprisingly, contradicting pattern was observed in earlier studies, where encouragement for innovation in the organisation demonstrated an insignificant correlation with both 'time stress' and 'anxiety' (Parker and Decotiis, 1983). To further understand this link, the influence of 'appetite for change' on occupational stress is examined as part of a conceptual model.

*H1b2: Appetite for Change significantly influences Occupational Stress among the service providers*

**c) Knowledge Deployment Trait on Occupational Stress among the Service Providers**

The association between knowledge deployment processes such as knowledge sharing and training for career and personal growth with occupational stress have been examined in several studies. In today's organisation with HPWS, the need to produce employees with high knowledge, skills and attitude has led to both positive and negative outcomes on employees' psychological well-being (Han et al., 2020). For instance, Pak and Kim (2018) as well as Shin and Konrad (2017) reported the inculcation of positive behaviour among employees as a result of knowledge intensification process. On the other hand, similar approaches were found to have caused fatigue and stress among the workers (Boxall and Macky, 2014). Significant and negative correlations were also reported between training and development program with both 'time stress' and 'anxiety' (Parker and Decotiis, 1983). Hence, the association between these variables is examined in this study.

*H1b3: Knowledge Deployment significantly influences Occupational Stress among the service providers*

**d) Alignment and Congruence Trait on Occupational Stress among the Service Providers**

Mixed responses were reported based on the previous studies on the association between alignment and congruence elements such as organisational structure, work processes, communication style and autonomy on job stress. Parker and Decotiis (1983) reported that formalisation and centralisation approach in the organisation did not have any significant association with 'time stress'. However, communication openness and autonomy were shown to negatively correlate with 'time stress'. Likewise, formalisation process demonstrated negative correlation with 'anxiety', while centralisation, communication openness and autonomy were insignificant to anxiety. This contradicts with similar study conducted among employees utilising ICT tools during Covid19 pandemic, where centralisation and vertical organisation structure were found to positively influence technostress level (Rodriguez and

Chaudary, 2021). Thus, the link between these two variables is apparent and thus, incorporated into the proposed model.

*H1b4: Alignment and Congruence significantly influences Occupational Stress among the service providers.*

#### **e) Leadership and Occupational Stress among the Service Providers**

Studies on the correlation between leadership elements and occupational stress also showed mixed outcome as other OI traits. For instance, early study by Parker and Decotiis (1983) showed that top management that was out of touch demonstrated significant and positive relationship with both ‘time stress’ and ‘anxiety’. Nevertheless, employees’ occupational stress level was negatively associated with leadership style that portrays fairness, honesty and trustworthiness (Schwepker and Dimitriau, 2021). Similarly, over-controlling leaders along with imbalance sharing of power between leaders and employees signified causal effects on stress (Malik et al., 2021). Since leadership style has affected the employees’ stress in various ways, the link between the leadership trait and occupational stress was incorporated in this model.

*H1b5: Leadership significantly influences Time stress among the service providers*

#### **2.4.3 Occupational Stress in relation to Digital Government Service Quality**

People are the core element that constitute an organisation. Johri and Aggarwal (2016) elaborated that, employees were the only treasured resources, who could convert data, information, and knowledge into valuable intelligence for the organisation. Thus, the role of employees in boosting organisational and service performance has been perceived as crucial, for happier employees performed better at work (Evenstad, 2018; Krekel et al., 2019). Nevertheless, prioritisation of the employees’ well-being had often been neglected or given less attention, as it was regarded as a resource-intensive approach (Krekel et al. 2019).

Narrowing down to empirical evidence, many studies have indeed agreed on the strong and positive correlation between employees’ well-being at work and organisational performance (Krekel et al. 2019; Ogbonnoya, 2019). Earlier organisational models of stress (Parker and

Decotiis, 1983) suggested that job stress did not necessarily lead to lower job performance all the time, as it was also influenced by other factors such as the intensity of the stress and coping mechanism. As such, the prolonged and intensive stress level would increase the likelihood of lower job performance.

The link between psychological well-being and organisational performance were also reflected in stress related theories such as the JD-R Theory postulated that employees exhibiting higher morale, less work-related stress, better emotional state and greater job satisfaction, will contribute to higher productivity and better organisational and service performance (Bakker and Demerouti, 2017; Bryson, Forth and Stokes, 2017). Similarly, employees with poor psychological well-being will demonstrate symptoms such as job strain which will negatively impact the job performance (Bakker and Demerouti, 2017). As the link between job stress and organisational performance is somewhat clear in the most organisational setting, the effect of occupational stress among the service providers on digital government service quality is worth examining and thus, will be incorporated as part of the model.

## **H2: Occupational Stress negatively influences the digital government services quality**

### **2.4.4 OI, Occupational Stress and Digital Government Service Quality: The Link among One Another**

With regard to the theoretical perspectives, the linkages between OI traits, occupational stress and service quality are well depicted in the Organisational Model of Stress (Parker and Decotiis, 1983). Nevertheless, this model is rather a causal model than a mediation model as proposed in this study. Looking through the lens of this model, OI traits can be well represented as organisational stressors that may lead to job stress (first-level outcome) and eventually affect service performance (second-level outcome). The individual-driven stressors such as employees' role and relationship with co-workers along with organisational stressors such as work climate, structure, and training, are incorporated in this model, as to how they affected job stress and later influenced individual employees' job performance, commitment and satisfaction.

There were also other documented empirical works that examined the linkages of all these three variables, but not entirely similar to the context of this study. Related literature with the closest match to all these variables emphasised how OI, work stress and job satisfaction were positively associated with organisational performance (Samadzadeh, 2013). Nevertheless, the paper did not demonstrate any clarity in explaining the scope of OI and the instrument used to conceptualise OI and organisation performance. Besides, it only examined the relationship between the constructs in the model. On another note, OI practices can also be related to high performing work system (HPWS) which have impacted the employees' well-being in many ways and thus lead to varying outcomes in organisational or individual work performance. Scholars such as Han et al., (2020) and Ogbonnaya (2019) asserted that HPWS approaches can provide both positive and negative outcomes on employees' physical, social, and psychological well-being, and thus affect organisational performance.

In determining the role of Occupational stress in the proposed study, previous studies have used it as both moderating and mediating variables, depending on the context of the study. At the same time, occupational stress has also been examined for its causal effect rather than for its mediation effect. Some of the studies that examined these links either as a mediator or part of a causal model are presented in Table 2.13.

With regard to the presence of both association and causal link between various antecedents on work-related stress and performance, relevant hypotheses to examine whether the influence of OI traits on digital service quality is mediated by occupational stress.

**H3: Occupational Stress mediates the relationship between OI traits and the digital government services quality**

**Table 2.13***Past studies with Occupational Stress in mediation and causation-based model.*

<b>No.</b>	<b>Source</b>	<b>Description</b>	<b>Key Variables</b>
1.	Parker and Decotiis (1983)	Study on the relationships between work stressors, first-level outcome (job stress) and second-level outcomes (varying levels of satisfaction, organizational commitment, motivation, and performance).	Work Stressors, Job Stress, Organisational Commitment, Job Satisfaction, Avoidance Behaviour, Job Performance.
2..	Montgomery et al. (2011)	A new conceptual approach as to how organisational culture and quality of care can be more effectively linked through the physician experience of burnout.	Hospital Culture, Employees' Burnout, Hospital Performance
3.	Montgomery, et al. (2013)	Study on the link between organisational culture, job burnout and the service quality in the health care sectors.	Organisational Culture, Job Burnout, Service Quality.
4.	Samadzadeh (2013)	Study on the effects of work stress, general health, organizational intelligence and job satisfaction on employee performance.	Work Stress, General Health, Organisational Intelligence, Job Satisfaction, Employee Performance
5.	Garg and Dhar (2014)	Study of organisational antecedents (job stress, leader-member exchange, perceived organizational support, organisational commitment) on service quality.	Job Stress, Leader-Member Exchange, Perceived Organisational Support, Organisational Commitment, Service Quality.
6.	Tongchaiprasita and Ariyabuddhiphongs (2016)	Assessment of the relationships among creativity, job satisfaction, job stress and turnover intention among chefs.	Creativity, Job Satisfaction, Job Stress, Turnover Intention

7.	Elmadağ and Ellinger (2017)	Study on the influences of reward approaches on job stress, commitment to the organisation, and customer orientation.	Reward Approaches, Job Stress, Commitment, Customer Orientation.
8.	Koay et al., (2017)	Study on the relationships between private demands, job stress and cyber-loafing.	Employees' Private Demand, Job Stress, Cyber-Loafing Practice
9.	Mahfooz et al. (2017)	Examination of the crucial role of workplace incivility and ostracism in employees' turnover intentions by concentrating on the mediating role of burnout and job stress and moderating influence of psychological capital in the health sector.	Workplace Incivility and Ostracism, Burnout And Job Stress, Psychological Capital, Employees' Turnover Intentions
10.	Karatepe et al. (2018)	Examination of the effects of organizational and personal resources on stress, engagement, and job outcomes.	Organizational Resources, Personal Resources, Stress, Engagement, Job Outcomes.
11.	Malik et al. (2018).	Evaluation of the relationships between supervisor and customer-initiated psychological aggression and vigour across time, and the mediating role of job stress in these relationships.	Supervisor Aggression, Customer Aggression, Vigour, Job Stress.
12.	Ogińska-Bulik, and Michalska (2020)	Study on the mediating role of job burnout in the relationship between psychological resilience and Secondary Traumatic Stress among nurses.	Psychological Resilience, Job Burnout, Secondary Traumatic Stress
13.	Benitez et al. (2021)	Assessment of the mediating role of two main aspects of work-related well-being in the unit (job satisfaction and burnout) on the relationship between interpersonal conflicts in the unit and customers' perceptions of service quality	Interpersonal Conflicts, Job Satisfaction, Burnout, Service Quality

#### **2.4.4.1 Linking Organisational and Employee-Oriented OI traits with Occupational Stress and Digital Government Service Quality**

There is no previous study to the best of my knowledge, that has investigated how individual and organisational traits in an intelligent organisation impacted occupational stress and service performance as proposed in this study. Employee-oriented OI traits are characterised by elements such as individual motivation, commitment and trust towards accomplishing organisation's goals synergistically and collectively. Based on the theoretical foundation and past studies, an individual's social motivation, learning capacity, sense of commitment and engagement with their job affects their behaviour and eventually the way they perform at work (Albrecht, 2003; Bandura, 1971; McClelland, 1975). At the same time, the relationship between psychological resilience, employees' personal development, organisation, and peer support demonstrated a significant association with organisational stress (Ogińska-Bulik and Michalska, 2021; Riezebos and Huisman, 2021; Wood et al., 2019) which eventually affect the employees' psychological well-being (Johnson and Rohde, 2022; Ogbonnoya, 2019).

On the other hand, organisation-oriented traits are reflected by elements such as leadership, organisation structure and culture that drive the innovation and success of the organisation. Similar to employee traits, organisation-oriented traits such as leadership style, organisation learning culture, ICT optimisation, delegation of power and goal setting process have also shown various impacts on psychological well-being which influences work performance to a certain extent (Boxall and Macky, 2014; Han et al., 2020; ILO, 2022; Ogbonnaya, 2019; Parker and Decotiis, 1983). Hence, this study proposes to narrow down the assessment of the mediation effect (H1) to the employee and organisation-oriented OI traits level via the following hypotheses.

H3a: Occupational Stress mediates the relationship between employee-oriented OI traits and the digital government services quality

H3b: Occupational Stress mediates the relationship between organisation-oriented OI traits and the digital government services quality



#### **2.4.4.2 Linking Each OI trait with Occupational Stress and Digital Government Service Quality**

Despite unavailability of literature in its entirety, there were studies that have incorporated organisational traits discretely in understanding how organisational factors such as organisational culture, leadership, reward system and organisational resources influenced job stress and eventually affected performance and service quality. As mentioned earlier, occupational stress has been used widely as both moderating and mediating variables, as well as part of the causal model. For instance, past studies on the mediating role or causal effect of occupational stress were observed in examining how various antecedents such as organisational culture, organisational resources, supervisor and customer-initiated psychological aggression and vigour, interpersonal conflicts in the team and workplace incivility and ostracism influenced service performance at individual and organisation level (Benitez et al., 2021; Karatepe et al., 2018; Mahfooz et al., 2017; Malik et al., 2021; Montgomery et al., 2011; Montgomery et al., 2013). There were other studies that still employed all three key variables in their study, in a slightly different structure and arrangement. In other words, these studies incorporated antecedents such as leader–member exchange, leadership, organisational support and commitment, reward approaches, job creativity and satisfaction with emotional exhaustion and job stress as well as individual and organisation performance but not in a similar way this paper proposes (Elmadağ and Ellinger, 2017; Garg and Dhar, 2014; Koo et al., 2020; Tongchaiprasita and Ariyabuddhiphongs, 2016;).

Having substantiated the role of work-related stress in addressing the association and causal effect between various organisational and individual traits and service performance, this study proposes three sub-hypotheses under employee-oriented OI traits (H3a), namely ‘Performance Pressure’, ‘Shared Fate’ and ‘Heart’. Similarly, five sub-hypotheses are proposed under H3b by integrating organisation-oriented OI traits represented by ‘Strategic Vision’, ‘Appetite for Change’ ‘Leadership’, ‘Alignment and Congruence’ and ‘Knowledge Deployment’.

*H3a1: Occupational Stress mediates the relationship between Performance Pressure and the digital government services quality*

*H3a2: Occupational Stress mediates the relationship between Shared Fate and the digital government services quality*

*H3a3: Occupational Stress mediates the relationship between Heart and the digital government services quality*

*H3b1: Occupational Stress mediates the relationship between Strategic Vision and the digital government services quality*

*H3b2: Occupational Stress mediates the relationship between Appetite for Change and the digital government services quality*

*H3b3: Occupational Stress mediates the relationship between Knowledge Deployment and the digital government services quality*

*H3b4: Occupational Stress mediates the relationship between Alignment and Congruences and the digital government services quality*

*H3b5: Occupational Stress mediates the relationship between Leadership and the digital government services quality*

#### **2.4.5 Identifying Priority Factors for Target Construct: Occupational Stress and Digital Government Service Quality**

In addition to examining the link between variables in mediation analysis, this study also identifies priority factors or predecessors (OI Traits and occupational stress) to sustain the digital government service quality. Hence, the findings from the mediation analysis are further extended by using the Importance Performance Map Analysis (IPMA) in plotting OI Traits and occupational stress based on their importance and performance values against digital service quality. The outcome will enrich the findings of mediation analysis and thus help in drawing better conclusions for the study. Further details on IPMA are discussed in Chapter 3.

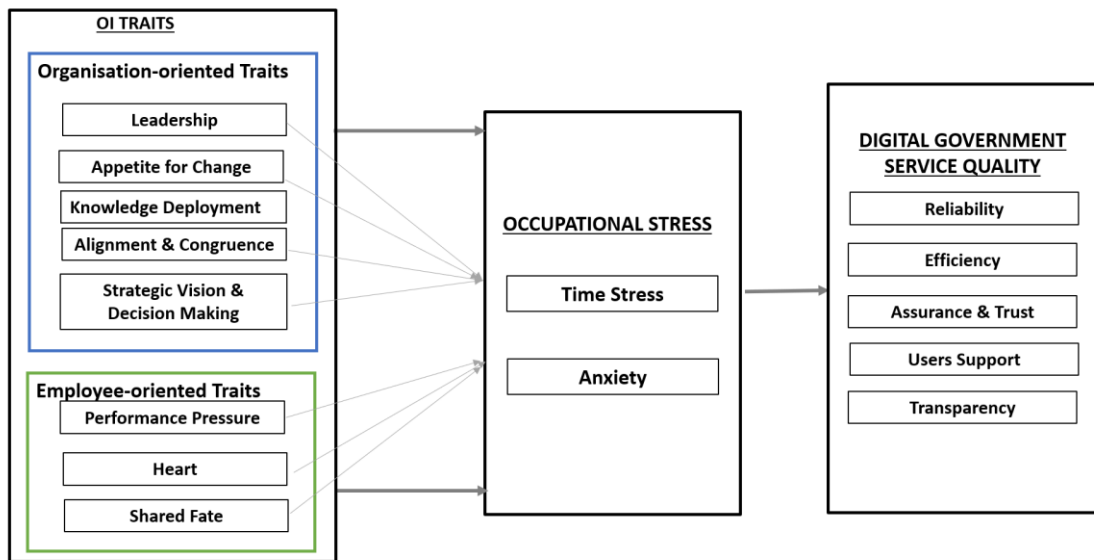
#### **2.5 Proposed Theoretical Framework**

The proposed framework in Figure 2.4 below was founded upon the Organisational Model of Stress which was incorporated with JD-R Theory and PSDL to serve the purpose of this study. The framework is a higher-order model that comprises an independent variable, a

mediating variable and a dependent variable which will be explained in the following paragraphs.

**Figure 2.4**

*The proposed theoretical framework*



Firstly, the independent variable for this study was represented by eight OI traits which are predominantly based on Albrecht’s (2003) OI Model. Nevertheless, the 8<sup>th</sup> dimension, “leadership” is included based on comparisons with other OI models. Though this dimension is implicitly embedded in the seven OI traits of Albrecht’s model, it is not made explicit. Hence, ‘leadership’ trait is included as it is deemed a crucial determinant of OI (Albrecht, 2003; Falletta, 2008; Stalinski, 2004; Virtanen and Vakkuri, 2015) and widely used in other models (Burke and Litwin, 1992; Falletta, 2008; Halal, 2002; Schwaninger, 2009; Stenvall and Virtanen, 2017; Virtanen and Vakkuri, 2015; Weisbord, 1978). Since OI is theoretically constituted by individual and organisational elements, the traits are classified as employee and organisation-oriented traits for the purpose of this study. Hence, employee-oriented OI traits consist of ‘Performance Pressure’, ‘Shared Fate’ and ‘Heart’. Organisation-oriented OI traits are represented by ‘Strategic Vision’, ‘Appetite for Change’ ‘Leadership’, ‘Alignment and Congruence’ and ‘Knowledge Deployment’. The influence of each OI trait on the digital government services quality is examined from the service providers’ perspectives.

Secondly, the dependent variable for this study is the digital government services quality. Precisely, the digital government service quality is assessed based on the service providers' standpoint. Therefore, e-GovQual model (Papadomichelaki and Mentzas, 2012), represented by four dimensions was adapted as it is one of the most widely used models (Albar et al., 2018; Jansen and Ølnes, 2016; Napitupulu, 2016; Rasyid and Alfina, 2017; Saputra, 2018; Sayin and Okursoy, 2013). At the same time, other dimension namely 'Transparency' from UN (2020), Lain and Chen (2009), Lai (2006) is incorporated to represent more holistic perspectives of the service providers' back-office process as well as the digital government services in the NPG era.

The third variable included in this study is the mediating variable, namely occupational stress. To measure this component, Parker and Decotiis's (1983) Job Stress Scale is utilised, for it is widely accepted in stress-related studies at the workplace. This involved the measurement of important stress components represented by 'time stress' and 'anxiety' resulted from work-related pressure. Therefore, this study examined if occupational stress mediates the influence of OI traits on digital government services quality.

In general, the proposed theoretical framework is aimed at examining the mediation effect of occupational stress on the relationship between OI traits and digital government services quality. As such, the influence of various OI traits on occupational stress as well as occupational stress on digital service quality was also assessed, as part of the mediation analysis. In order to enrich the findings prior to drawing conclusions for the study, the priority factors of OI traits, in terms of their performance and importance towards sustaining the digital government service quality are also assessed to gain additional insights.

## **2.6 Conclusion**

This chapter has set the context of this study from both scholarly and practitioners' perspectives. As such, the fundamental concepts and definitions of key variables along with the current glimpse of digitalisation initiatives are discussed. This chapter also highlights the position of Malaysia's digital services at the global arena. Accordingly, the driving forces in

sustaining the quality of digital government services, namely the organisational intelligence and job-related stress among the service providers are brought into the discussion.

Following this, this chapter elaborates on theories and models that are pertinent to the study which later facilitates the development of research hypotheses. Accordingly, the theoretical framework for this study is proposed which aims to examine the mediating role of occupational stress in understanding the relationship between organisational intelligence and digital government service quality.

## **CHAPTER 3: RESEARCH METHODOLOGY**

This chapter starts with the philosophical perspective comprising ontological and epistemological assumptions involved in this study. Next, the methodological approach used in this study is discussed. This includes the reviews from past studies, population and samples as well as the unit of analysis pertinent to this study. This is followed by discussion on the steps involved in the instrument development process, which included the pilot study analysis. Lastly, the outcome and action plans following the pilot study are discussed.

### **3.1 Philosophical perspective of the study**

Generally, the ontological and epistemological stances will collectively affect the methods in performing empirical research and thus, determining a valid contribution to theory (Tsang, 2016). According to Tsang (2016), philosophical perspectives that have been mostly discussed by management researchers are positivism, postmodernism, critical realism and pragmatism.

Essentially, positivism recognises the existence of an objective and mind-independent reality (Tsang, 2016), while postmodernism such as constructivism and interpretivism perceive reality as socially constructed through subjective meanings and shared language (Berger and Luckmann, 1967). On the other hand, critical realism distinguishes between domains of reality and believes that it is constructed through what is observable, based on our perspectives and experiences (Bhaskar, 1978). The pragmatism philosophy takes a middle approach of mixed research methods, comprising both qualitative and quantitative techniques (Johnson and Onwuegbuzie, 2004; Maxcy, 2003).

As this study adopts positivism and interpretivism ontological and epistemological assumptions, they have influenced this study in setting the research goals and outcomes. Hence, in the context of this study, the world is viewed as comprising discrete, observable elements and events that interact in an observable and objective manner (Collins, 2010). This study also assumes that the external social and natural world can be viewed objectively, at which the researcher can play the role of passive observer (Johnson and Duberley, 2000). As such, from

the theoretical perspective, public service delivery is composed of the observable elements such as public service organisations, service providers, citizens and digital systems (Osborne et al., 2013).

Despite positivism assumption that serve as a foundation of this study, it is irrefutable to consider post-modernism assumptions in social science element which is also incorporated in the proposed study. Therefore, this study believes on the subjective meanings attached to the phenomena by the actors involved in this study setting. Specifically, this study recognises the importance of interpreting the underlying meaning based on the service providers' subjective frame of reference, as in how the digital service quality is influenced by OI traits with the presence of occupational stress element (Tsang, 2016).

As this study takes positivist and interpretivist approach, it is assumed that the interactions among the proposed constructs are observable and viewed objectively. At the same time, this study also acknowledges that the phenomena depicted in the proposed model consists of subjective meanings that need to be interpreted based on service providers' and respective experts' subjective experiences and beliefs.

## **3.2 Methodological approach of the study**

### **3.2.1 A review of methodology used in previous studies**

The searching was performed by using terms such as 'knowledge-based organisations', 'smart organisation', 'intelligent organisation' and 'learning organisation' to represent OI. At the same time, generic organisational traits that constitute OI such as work culture, leadership, leader-member relationship, knowledge management and human resource management were also used. Similarly, 'job stress', 'work-related stress', 'job burnout' and 'occupational stress' were used to identify best matches for models relating to occupational stress. As for the digital government service quality, terms such as 'electronic government services', 'e-government services', 'service quality', 'digital service quality', 'digital service performance' and 'digital government service quality' were used to perform the search. Following this, no studies to the best of my knowledge have examined the linkages of all these three variables at once, as examined in this study context. Nevertheless, there were similar studies that looked into how

some of the organisational components such as leadership, work culture and employees' well-being are related to the organisational performance in a more generic context.

Based on 20 relevant previous literatures found, quantitative approach was used in most related research followed by qualitative design, though not in the exact similar context used in this study. There is no literature found to have employed mixed method study approach based on the search. Summaries of methodologies used previous studies are illustrated in Table 3.1.



**Table 3.1***Summaries of methodologies used previous studies*

<b>No.</b>	<b>Source</b>	<b>Description</b>	<b>Sample</b>	<b>Methodology</b>
1.	Parker and Decotiis (1983)	Examining the effect of various <b>work stressors</b> on first level outcome ( <b>job stress</b> ) and later the second level outcome (organizational commitment, job satisfaction, avoidance behaviour, <b>job performance</b> ).	367 managers of a large restaurant chain.	Quantitative (Causation)
2.	Boshoff and Mels (1995)	Developing a causal model to evaluate the relationships among <b>supervision, role stress, organizational commitment</b> and <b>internal service quality</b>	140 insurance salesmen.	Quantitative (Causation)
3.	Kalkan and Gebze (2005)	Conceptualisation of <b>OI components</b> : Information processing capacity, adaptive capability, collective emotional intelligence with consequences: organizational innovation capability, <b>organizational performance</b>	Comprehensive literature review	Qualitative
4.	Ongori and Agolla (2008)	<b>Examination of occupational stress</b> in organizations and its effects on <b>organizational performance</b> .	employees working in public organisations.	Quantitative (Causation)
5.	Liao et al. (2009)	Examination of Management and Employee Perspectives of <b>High-Performance Work Systems</b> and Influence Processes on <b>Service Quality</b> . Besides, the mediating role of <b>Employee Psychological Empowerment</b> alongside others were also examined.	292 managers, 830 employees, and 1,772 bank customers.	Quantitative (Mediation)
6.	Montgomery et al. (2011)	Conceptualisation of how <b>organisational culture</b> and <b>service quality</b> are linked through the <b>employees' burnout</b> .	Literature review	Qualitative
7.	Astvik and Melin (2012)	examining different pattern of coping strategies for <b>work demands and resources</b> , and they impact <b>employee's health</b> and <b>service quality</b> .	247 social workers	Quantitative (Causation)
8.	Clarke and Hill (2012).	Exploring the relationship between <b>employee well-being</b> and <b>service quality</b> .	Reviews of Literature	Qualitative
9.	Samadzadeh (2013)	Study of the effects of <b>work stress</b> , general health, <b>organisational intelligence</b> and job satisfaction on <b>employee performance</b> .	144 university staffs	Quantitative (Correlation)

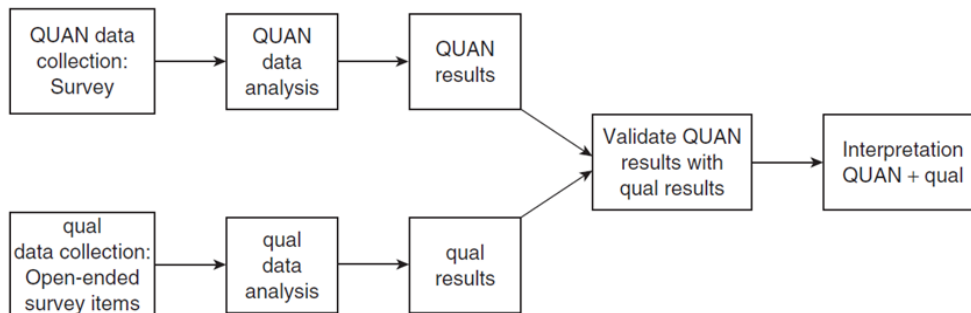
10.	Montgomery et al. (2013)	Study on the link between <b>organisational culture, job burnout</b> and the <b>service quality</b> health care sectors.	Physicians, nurses and patients.	Qualitative
11.	Garg and Dhar (2014)	Effects of <b>stress, leader-member exchange</b> and perceived <b>organizational support on service quality</b> .	451 hotel employees	Quantitative (Causation)
12.	Nezhadalilafmejani et al. (2014)	Study of <b>OI soft dimensions</b> : emotional intelligence; spiritual intelligence and cultural intelligence towards <b>organizations' service quality</b> .	Reviews of Literature	Qualitative
13.	Kiani et al. (2015)	Study of the <b>OI</b> , environmental changes at present and the role of intelligence in <b>survival of organisations</b> .	Reviews of Literature	Qualitative
14.	Bahrami et al. (2016).	Examination of the mediating role of <b>organizational learning</b> in the relationship of <b>organizational intelligence</b> and <b>organizational agility</b> .	370 administrative and medical staff	Quantitative (Mediation)
15.	Elmadağ and Ellinger (2018)	examining the influences of <b>reward approaches on job stress, commitment to the organization</b> , and customer orientation.	220 customer contact employees	Quantitative (Causation)
16.	Evenstad (2018)	A <b>systemic perspective consequence</b> : constant time pressure, work intensification, hyperconnectivity, frequent organizational changes, and rapid pace of technological change on <b>ICT worker burnout</b> .	phenomenological analysis	Qualitative
17.	Karatepe et al. (2018)	Examining the effects of <b>organizational and personal resources on stress, engagement, and job outcomes</b> .	366 hotel employees and supervisors	Quantitative (Causation)
18.	Krekel et al. (2019)	Study of <b>employee well-being, productivity, and firm performance</b> .	Reviews of Literature	Qualitative
19.	Ogbonnaya (2019)	Exploring possible trade-offs between <b>organisational performance</b> and <b>employee well-being</b> : The role of <b>teamwork practices</b> .	4,311 workers in 664 workplaces in Britain	Quantitative (Correlation)
20.	Koo et al. (2020)	Assessing relationships among <b>emotional and material rewards, Job Satisfaction, Burnout, Affective Commitment, Job Performance</b> , and Turnover Intention.	324 Human Resource Managers in South Korea	Quantitative (Mediation)

### 3.2.2 Chosen methodology for the current study

This study employs triangulation design to obtain different but complementary data on the same topic (Creswell et al., 2006; Morse, 1991). Specifically, the triangulation design approach employed for this study is known as the validating quantitative data model (Figure 3.1), aimed at validating and expanding the quantitative findings. According to Creswell et al. (2006), this design involves quantitative survey questions as well as some open-ended qualitative questions, which are collected within the same instrument and time frame. Similar research design was observed in Peters and Brown (2022), Webb et al. (2002) and Strijbos et al. (2007).

**Figure 3.1**

*Triangulation Design: Validating Quantitative Data Model.*



*Note.* From " Designing and Conducting Mixed Methods Research" by J.W.Creswell, 2017, USA: SAGE Publications, Inc. Copyright 2017 by SAGE Publishing.

With regard to this, quantitative method approach is utilised to examine the association among three variables, namely OI practices, job stress and digital government service quality, as to how occupational stress acts as a mediator between these variables. To serve this purpose, the research process starts with the formulation of research questions and hypotheses which are then tested with partial least squares structural equation modeling (PLS-SEM) to either support or reject them. In addition to that, this study also applies Importance-Performance Map Analysis (IPMA) approach to gain additional insights and enrich the conclusion derived from the previous PLS-SEM analysis (Ringle and Sarstedt, 2016; Tailab, 2020).

Qualitative method involves the thematic analysis of open-ended questions which are incorporated in the same survey instrument. The questions are optional and primarily aimed to

give opportunities to participants to explain the aspects that requires attention in sustaining the digital service quality and improving psychological well-being among the service providers. Path coefficient analysis provides information on significance and direction of each aspect on target construct (occupational stress and service quality) while IPMA provides insight on which aspects are the critical and less critical aspects in improving the performance of the target construct. However, the open-ended questions may provide additional details on specific area of improvement for enhancing psychological well-being of the employees and sustaining the service performance. In addition to that, this study also incorporated insights from subject matter experts and practitioners to further clarify the outcome of quantitative data analysis to facilitate interpretation and validation of analysis outcome and proposal of pertinent recommendations for the Malaysian public sector.

### **3.2.3 Time Horizon**

Cross sectional research design was employed as the data collection was carried out once which is considered sufficient to answer the research questions, test the hypotheses and to derive the IPMA model for this study. The selection of this approach is made after taking into consideration time constraints and access to respondents.

Nevertheless, the researcher is aware that longitudinal studies is the best approach to serve the need of testing of causal process of a mediation model that unfolds over time (MacKinnon et al., 2012). Hence, the cross-sectional approach is said to cause limitations in testing the mediation effect (Kenny, 2008; Stone-Romero and Rosopa, 2008, 2011). Though longitudinal approach has always been recommended to test mediation effect, MacKinnon and Pirlott (2015) stated that it does not necessarily imply causation, and hence requires a more rigorous test. At the same time, it is also important to note that cross-sectional approach is said to be able to reveal possible causal mechanisms too given the research model is built upon a well-founded theory that describe the causal direction of the processes (Shrout, 2011).

Taking into considerations all these arguments along with time constraint and effort required, cross sectional study was adopted as this study was built upon Organisational Model of Stress and JD-R Theory as discussed in the previous chapters. These theories provide a solid foundation which fits the context of the proposed research framework, as to how various job

demands and resources or job stressors influence job stress and eventually service performance. At the same time, the respondents' perception towards aspects such as leadership, organisation culture, monitoring of service performance and work-related stress are not something that can demonstrate substantial changes within a short span of time that this study can accommodate.

### **3.2.4 Unit of Analysis**

Unit of analysis is referred to as the entity or level of aggregation which the data is collected from and will provide answers to what is being studied (Bougie and Sekaran, 2019; Kumar, 2018). Hence, it has to be derived from the population which the generalisation is to be made (Zainudin, 2012).

Essentially, the variables involved in this study consist of entities at different levels. However, this study focusses on examining how the occupational stress among the service providers mediates the influence of various OI traits towards digital government service quality in the Malaysian public sector. In other words, generalisation is to be made at the individual level represented by service providers of digital government at the Malaysian federal administrative level.

Hence, the unit of analysis for this study is the individual public service personnel who is the digital government service provider. Specifically, data is obtained from each individual in the selected samples and thus each individual response is treated as an individual data source representing their perceptions on the related variables (Sekaran and Bougie, 2010).

### **3.2.5 Target Population and Sample**

#### **3.2.5.1 Quantitative Data Collection**

According to Bougie and Sekaran (2019), the target population in a study ought to be defined in terms of time, elements and geographical boundaries. Generally, the target population for this study is the digital government service providers at the federal administrative level who serve the citizen and businesses (G2B and G2C). Specifically, service providers in this study are represented by the public service personnel who are involved in the planning and day-to-

day digital service operations and delivery in the ministries and department at the federal level. This consists of the personnel from various teams such as technical support, business process and change management. In this regard, all the service providers at the 178 federal agencies are counted in, as most of their core services are delivered via digital platform.

In terms of digital services, there are 1,947 digital government services at the federal and state level in Malaysia (MAMPU, 2020). However, for the purpose of this study only 1,783 digital services to citizen (G2C) and businesses (G2B) provided by the federal agencies are taken into considerations. In other words, local authorities, higher education institutions and hospitals are not included in the study. The selection of agencies at the federal administrative level was mainly due to nature of its services that covers wide spectrum of users and sectors across federal, state and district.

At the same time, emphasis on digital services involving G2B and G2C were considered more relevant and in accordance with citizen-focussed approach emphasised in the Malaysia's 12<sup>th</sup> Malaysia Plan 2021-2025 and international rating bodies such as United Nations and Waseda – IAC. Hence, digital services involving government agencies (G2G) and personnel (G2E) were excluded. The total population comprising 1,783 digital services, belonging to 178 federal agencies is illustrated in Table 3.2. Nevertheless, the total number of personnel cannot be estimated due to unavailability of such data at the central agency. The huge variation in the number of manpower between one agency and the other is primarily due to different organisational structure and service nature in each agency.

### **3.2.5.2 Qualitative Data Collection**

Essentially the similar samples were involved in the qualitative data collection from open-ended questions, as it utilises the same instrument. However, this study also engages with subject matter experts across United Kingdom and Malaysia along with practitioners from the Malaysian public sector to gain additional insights to interpret the quantitative data findings. Therefore, subject matter experts from areas such as digital government, human resources, work psychology and public service as well as practitioners from the federal agencies are the potential respondents at this stage.

### **3.2.6 Sampling Technique**

#### **3.2.6.1 Quantitative Data Collection**

The sampling technique adopted for this study is probability sampling, as representatives of sample and generalisability were deemed important (Sekaran and Bougie, 2010). To serve this purpose, cluster sampling is employed by sectors due to two main reasons. Firstly, the list of all population elements in this study context is impossible or impractical to obtain (Frey, 2018) as there is no such data kept or maintained by central agency. This is due to the dissimilar composition of service provider's job schemes and organisational structure among agencies. The job scheme composition is much dependent on the nature of digital services and agencies themselves. In terms of structure, some agencies have a centralised digital service providers under a dedicated department. Most often, the service providers are segregated in various departments. Hence, it is challenging and time consuming to obtain the list of service provider personnel assigned to each of digital systems in the organisation.

Secondly, the population exhibits more heterogeneity within clusters, and more homogeneity among clusters (Awang, 2012; Bougie and Sekaran, 2019). Despite dissimilar nature of core business, each cluster (sector) consists of service providers handling wide variety type of digital services, with different scope of service coverage, different transactional volume and diverse target users (G2B and G2C).

#### **3.2.6.2 Qualitative Data Collection**

Essentially the similar sampling technique for quantitative data collection is employed to collect the qualitative data, as it utilises the same instrument. Since the open-ended questions are optional fields, the number of responses may be lower than the quantitative data samples. At the same time, non-probability sampling (purposive sampling) is adopted for obtaining expert and practitioners insights. This approach is usually employed in qualitative study, when the respondents are selected based on their expertise in the field of our study (Sekaran and Bougie, 2010; Teddlie and Yu, 2007).

### 3.2.6.3 Selection of Respondents Using Multistage Cluster Sampling Technique

The specific type of cluster sampling technique used in this study is the multistage cluster sampling. It basically starts with defining the cluster characteristics in the target population, so the total number of clusters in the population are known (Hair et al., 2020). Next, probability sampling is applied at every stage of the sampling unit until the final stage (Bougie and Sekaran, 2019; Sekaran and Bougie, 2010). According to Hair et al. (2020), if more than one cluster are used, the sample size should be allocated appropriately via proportionate sampling basis. At the final stage, every member in those final units can be either sampled or randomly drawn from the sample (Bougie et al., 2020; Hair et al., 2020).

With regard to this, the target population which is represented by the 178 agencies at the federal government level are grouped based on the five clusters. These clusters are social, economy, security, infrastructure and lastly, the agencies under direct purview of the Prime Minister (Prime Minister's Department of Malaysia, 2020). Each cluster consists of a number of agencies and their respective digital services (Table 3.2).

**Table 3.2**

*No. of digital services by clusters at the federal administrative level*

No.	Cluster	No. of Agencies	No. of Digital Services (G2C and G2B)
1.	Prime Minister	28	238
2.	Infrastructure	45	410
3.	Security	30	166
4.	Economy	41	463
5.	Social	34	506
		<b>178</b>	<b>1783</b>

*Source: Prime Minister's Department of Malaysia (2020)*

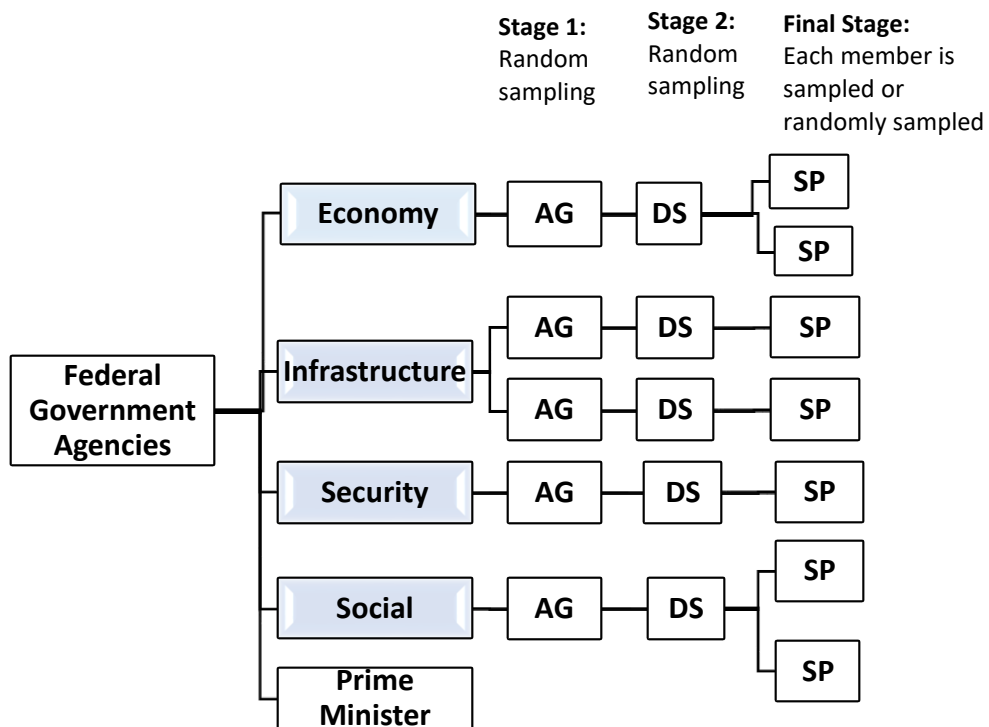
To serve the purpose of data collection for the actual study, four clusters were chosen namely social, economy, security and infrastructure. The Prime Minister cluster was not chosen as



eight (28.5%) of its' agencies has already been included in pilot study. Next, it involved two stages of random sampling: a) agencies level and b) digital services level. At the final stage, all personnel belonging to the selected digital government services were counted in, including the technical team, subject matter experts and change management team. However, the project manager and their superiors were not included in this phase to avoid conflict of interest as the management policy and strategy making approach were assessed in the survey instrument. Figure 3.2 illustrates the multistage cluster sampling technique.

**Figure 3.2**

*Multistage cluster sampling approach*



*Note: AG – Agency DS – Digital service; SP – Service provider*

*The number of AG, DS and SP in the diagram does not indicate the actual number of samples to be drawn from each cluster*

### 3.2.7 Determining the Sample Size

#### 3.2.7.1 Quantitative Data Collection

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Sample size is defined as the subset of a population required to ensure that there is an adequate amount of information to draw conclusions from (Sekaran and Bougie, 2010). As explained before, the population size for this study was unknown and thus, minimum sample size estimation based on population size could not be performed. Hence, sample size determination approach based on known population such as Krejcie and Morgan's Table (1970) or Slovin's formula were not employed for this study. Alternatively, other methods such as the 10-times rule (Barclay et al., 1995; Hair et al., 2017) and power analysis using statistical software such as G\*Power (Faul *et al.*, 2009; Faul *et al.*, 2007) were employed to determine the minimum sample size.

**a) The 10-Times Rule**

Based on the 10-times rule, the minimum sample size has to be equal to the larger of either 10 times the largest number of formative indicators used to measure one construct or 10 times the largest number of structural paths directed at a particular latent variable (Barclay *et al.*, 1995; Hair et al., 2017). Hence, based on the research model of this study, there are 8 structural paths directed at the dependent variable. Similarly, the largest number of formative indicators to measure a construct is OI traits, represented by 8 formative indicators. Hence, the minimum sample required is 80.

**b) Power Analysis: F Test**

The use of G\*Power (power analysis) has often been recommended for sample size calculation (Hair et al., 2014; Hair et al., 2017; Ringle *et al.*, 2018). The minimum sample size was calculated by using G\*Power 3.1.9.7. The number of predictors refers to the maximum arrows pointing to a dependent variable in the model (Memon et al., 2020). At the same time, Memon et al. (2020) also stressed on the importance to consider the number of indicators that form a formative construct, in case it turns out to be greater than the number of arrows pointing to other constructs in the path model. Since in both circumstances the maximum of arrows pointing at either formative construct or other constructs in this model are eight, the calculation is performed based on this number. Next, F test with Linear multiple regression: Fixed model, R<sup>2</sup> deviation from zero was run with effect size at 0.15 (medium effect),  $\alpha$  at 0.05, and power

at 0.80 in the input parameters as recommended setting for social and business science research (Hair *et al.*, 2017). Based on the input earlier, the minimum sample required is 109.

**F tests** - Linear multiple regression: Fixed model,  $R^2$  deviation from zero

**Analysis:** A priori: Compute required sample size

<b>Input:</b>	Effect size $f^2$	= 0.15
	$\alpha$ err prob	= 0.05
	Power (1- $\beta$ err prob)	= 0.80
	Number of predictors	= 8

### c) Sample size for this study

Following this, the number of digital services sampled for the actual study were determined based on several approach of sample size calculations. Firstly, minimum number of samples was determined via the 10-times rule is 80 samples. whereas and power analysis (G\*Power) is 109 samples. At the same time, CFA and hypotheses testing were performed with the actual data. Several considerations on minimum sample size for CFA is discussed under Section 3.3.7.2. However, this study employed the ratio of 1 item: 5 sample (Hair *et al.*, 2019) for CFA, which means instrument with 70 items would need at least 350 samples.

Considering the response rate from the pilot study, 10 agencies and 75 digital services are required to generate 133 responses (Section 3.3.7.2). Hence, a total of 40 agencies and 300 digital services were targeted for the actual study, which fulfils the requirements for all the conditions stated earlier. As suggested by Hair *et al.* (2020) earlier on, proportionate sampling basis was employed to ensure the number of agencies and digital services chosen from each cluster were well represented. Next, the random number generator in IBM SPSS 26 was used to select the samples randomly from each cluster (Hair *et al.*, 2020). Table 3.3 shows the number of service providers involved in the actual study and the total number of service providers to be sampled in the actual study using proportionate sampling.

**Table 3.3**

*The total number of service providers to be sampled in the actual study*

Clusters	No. of agencies	Percentage of agencies in clusters (%)	No. of agencies (based on proportionate sampling)	No. of digital services (G2C and G2B)	Percentage of digital services in clusters (%)	No. of digital services to be sampled (based on proportionate sampling)
Infrastructure	45	30.41	12	123	21.21	64
Security	30	20.27	8	71	12.24	37
Social	34	22.97	9	274	47.24	141
Economy	38*	26.35	11	112	19.31	58
	<b>147</b>	<b>100.00</b>	<b>40</b>	<b>580</b>	<b>100.00</b>	<b>300</b>

*Note:*

\* *Number of agencies after excluding those involved in pilot study*

### **3.2.7.2 Qualitative Data Collection**

The sample size for open-ended qualitative questions was similar to the quantitative survey samples as both data types are incorporated in the same instrument and collected at the same time. Since the open-ended questions are optional fields, the number of responses may be lower than the quantitative data samples. As for the engagement sessions with the experts and practitioners, this study targeted about 10 to 15 respondents. The decision was made based on previous literature asserting that there is no ideal number of cases, and thus, a number between four and ten cases often works well (Eisenhardt, 1989). In the similar vein, scholars such as Glaser and Strauss (1967), Eisenhardt (1989) and Patton (1990) suggested that the process should continue until theoretical saturation or stability is met, as in no new information emerges from the interviews. These criteria were taken into consideration while the engagement session was carried out.

### 3.3 Instrument Development and Analysis Approach

#### 3.3.1 Quantitative Instrument

The instrument development and validation process for this study was adapted from MacKenzie et al. (2011) and Hair et al. (2019). The instrument is aimed at assessing the perception of service providers on various organisational traits that potentially influence employees' well-being and service quality. Generally, it consisted of seven steps starting from conceptualisation of construct to cross validation of scales with actual field study. The steps and approach involved in this study is presented in Table 3.4.

**Table 3.4**

*Instrument development steps of this study*

<b>Steps</b>	<b>Details</b>	<b>Approach</b>
Step 1	Develop a Conceptual Definition of the Construct	Literature Review
Step 2	Generate Items to Represent the Construct	Literature Review
Step 3	Assess the Content Validity of the Items	Expert Review
Step 4	Specify the measurement model	Literature review
Step 5	Pre-test the instrument	Selected Respondents
Step 6	Conduct Pilot Testing and Refine Scale	- Data collection: Online and Offline Survey. - Scale Refinement: Measurement model Assessment
Step 7	Conduct Field Study and Cross-Validate the Scale	Data collection: Online survey. Analysis: Measurement and Structural Model Assessment

Each of the steps taken in the development and validation of the instrument is explained in the following sections.

### **3.3.1.1 Step 1: Development of Conceptual Definition of the Construct**

According to MacKenzie et al. (2011) and MacKenzie (2003), the first stage of instrument development requires the researcher to specify the definition of the construct clearly and concisely in unambiguous terms and manner. Hence, in the preliminary stage of scale development for this study, extensive literature review was performed to specify the definition of each construct. As such, strong emphasis is put on studies published in recognised journals as well as the ones with the state-of-the-art research on the respective domain (Hair et al., 2019). Besides, it is also important to evaluate whether each construct is unidimensional or multidimensional (Boateng et al., 2018; MacKenzie, 2011), for each of these dimensions need to be defined as well (MacKenzie, 2011). Since all the constructs of this study are multidimensional constructs, the conceptual definition for each construct and its' respective dimensions is explained in Table 3.5. More details on the multidimensionality of the constructs are explained under Step 4: Specifying the measurement model.

**Table 3.5***Definition of constructs and dimensions of this study*

<b>Construct</b>	<b>Dimensions</b>	<b>Definition</b>	<b>Source</b>
<b>Organisational Intelligence</b>		the extent to which an organisation mobilises all its potentials as a fully functioning brain and sustains effective interaction at its' inner and outer boundaries on achieving organisation mission.	Albrecht (2003), Dealtry (2004), Stenvall and Virtanen (2017).
	Leadership	leaders who have the capacity to steer the engine of the organisational vehicle in the desired direction. Since intelligence ought to be inculcated at all levels, leadership in OI context is represented by leaders at all levels in contributing to the success of an organisation.	Albrecht (2003)
	Strategic Vision & Decision Making	the capacity of an organisation to create, evolve and express its purpose, in order to improve or innovate for competitive advantage.	Albrecht, (2003); Falletta and Combs (2018), UN (2020)
	Shared Fate	it revolves around the people and stakeholder who have the same common purpose and understand their roles in the organisation. Thus, they act synergistically to accomplish the organisational mission and vision.	Albrecht (2003)
	Appetite for Change	it is about the people in the organisation who want to reinvent the business models as a way to react to the environment and seek opportunity to learn new ways leading to a successful organisation.	Albrecht (2003)
	Heart	the 'discretionary effort' or willingness of employees to give over and above the level than what they are expected to provide in ensuring the organisational success.	Albrecht (2003)
	Knowledge Deployment	the extent to which the organisation produces, transforms, share, organise and apply knowledge. Hence, it involves relevant support and inspiration for new ideas and inventions to challenge the status quo.	Albrecht (2003)
	Performance Pressure	the commitment of every employee to own the performance proposition. This implies the sense of what needs to be accomplished and thus accepted as a self-imposed set of mutual expectations with the leaders for shared success.	Albrecht (2003)

Alignment and Congruence	the structure of how the organisation is designed to ensure work and responsibilities are properly distributed, rules are exercised for interaction with one another and the environment, as well as the people are organised for the mission accomplishment.	Albrecht (2003); Falletta and Combs (2018).
<b>Occupational Stress</b>	the feeling of an individual who is required to deviate from normal or self-desired functioning at the workplace as the result of role, opportunities, constraints, or demands relating to potentially important work-related outcomes	Parker and Decotiis (1983); Shukla and Srivastava (2016)
Time Stress	related to feelings of being under substantial time pressure	Parker and Decotiis (1983)
Anxiety	associated with job-related feelings	Parker and Decotiis (1983)
<b>Digital Government Service Quality</b>	the extent to which the performance of the service delivery is sustained via internal process support such as constant monitoring and evaluation, to ensure effective and efficient online information search and transaction as well as communications between the government and the users	Blut (2016); Hien (2014); Osborne et al. (2014); Stamenkov and Dika (2015); UN (2020).
Reliability	sustainability of service portal ability to perform the promised service dependably and accurately by ensuring correct functioning of the website and and speed of accessing, using, and receiving services.	Parasuraman et al., 1988, 2005; Papadomichelaki and Mentzas (2012)
Efficiency	The ability to sustain the ease of using the service portal and the quality of information it provides.	Papadomichelaki and Mentzas (2012)
Transparency	The extent to which the transparency and legality of its digital services are sustained.	Sa et al., 2016; Karkin and Janssen, 2014).
Assurance and Trust	The degree to which the citizen belief of the service portal's safety is assured, i.e. from intrusion and personal information protection.	Papadomichelaki and Mentzas (2012)
User Support	The ability to sustain the quality of users support when needed while experiencing difficulties in their interaction with the service portal.	Papadomichelaki and Mentzas (2012)



### **3.3.1.2 Step 2: Generation of Items**

This is an important step to specify the purpose of each construct, identify the relevant instruments and describe the operational definition for each construct are prior to generating scale items (Boateng et al., 2018). Since the necessary information pertaining to research domain was sufficiently available, deductive method was utilised in deriving the item pools, which was done via reviews of existing instrument and literatures (Boateng et al., 2018; Mackenzie et al., 2011; Hair et al., 2019).

Essentially, the instrument was divided into five sections: OI traits, occupational stress, digital government service quality, demographic profile, and open-ended questions. It basically involves assessment or perception of service providers on various organisational factors that potentially influence employees' well-being and service quality. According to Artino et al. (2014), it is recommended to either fully use or slightly adapt the existing questionnaire, that closely match with the intended study. Brief description of the sources and instruments adopted in each construct and its' application in previous studies is described below:

#### **a) OI Traits**

The main instrument used as a basis to develop this instrument for OI variable is Albrecht's (2002) OI Profile with seven dimensions and 49 items. This instrument was aimed at assessing the organisation's overall effectiveness, as to how it can do things in a smart way. Albrecht's (2002) OI instrument has been widely used in measuring OI practices in the organisations (Bazrkar and Hajimohammadi, 2021; Keshavarz et al., 2018), though its use in the public sector context is very limited.

Since the survey is intended for public service personnel, some of the item were either rephrased or removed in accordance with the Malaysian public sector context during content validity phase. It is also important to note that, previous studies showed that there are significant correlations among all questions. Plus, six factors of OI Profile instrument had the eigenvalue greater than 1 (Zarbakhsh et al., 2011). Some of the studies from 2010 to 2021 that employed Albrecht's (2002) OI instrument is illustrated in Table 3.6.

**Table 3.6***Previous studies that employed Albrecht's (2002) OI Profile*

	<b>Past Studies</b>	<b>Target Population</b>	<b>Instrument Reliability</b>
1.	Mooghali and Azizi (2008)	Private organisation	Cronbach alpha – 0.93
2.	Yaghoubi et al. (2012)	Public organisation	Cronbach alpha – 0.91
3.	Azmaa et al. (2012)	Public organisation	Cronbach alpha – 0.891
4.	Matin et al. (2010)	Public Organisation	Test-retest – 0.9037 split-half method: Correlation between both half - 0.706 total reliability - 0.828 Cronbach alpha – 0.945 Convergent validity - 0.961
5.	Zarbaksh et al. (2011)	Public organisation	Cronbach's alpha – 0.968
6.	Kord et al. (2013)	Private organisation	Reliability – 0.81
7.	Sohrabi and Asari (2014)	Private organisation	Cronbach alpha – 0.968
8.	Nazem et al. (2014)	Private organisation	Cronbach Alpha - 0.88
9.	Ahangari and Hallajian (2015)	Private organisation	Cronbach alpha – 0.934
10.	Nezam et al. (2016)	Private organisation	Cronbach alpha – 0.854 (manager) and 0.846 (employees)
11.	Torkamani and Maymand (2016)	Private organisation	Cronbach alpha – 0.805
12.	Al-Kasasbeh et al. (2016)	Private organisation	Cronbach alpha > 0.90
13.	Bahrami et al. (2016)	Public organisation	Cronbach alpha – 0.960
14.	Keshavarz et al. (2018)	Public organisation	Cronbach alpha – 0.93 Composite reliability – 0.94
15.	Soltani et al. (2019)	Public organisation	Composite reliability – 0.94 Cronbach alpha – 0.93
16.	Hamad (2019)	Private organisation	Cronbach alpha – 0.934
17.	Sadq and Othman (2019)	Private organisation	Cronbach alpha – 0.871
18.	Ismail and Al-Assa'ad (2020)	Private organisation	Reliability – 0.85

19.	Abolhasani and Pargar (2020)	Public organisation	Cronbach alpha – 0.83
20.	Zia-ur-Rehman et al. (2020)	NGO	Composite reliability – 0.803
21	Nazarpouri et al. (2020)	Private companies	Composite reliability – 0.9236 Cronbach alpha – 0.8995
22	Bazrkar and Hajimohammadi (2021)	Private organisation	Cronbach alpha - 0.803 Composite reliability-0.712

Besides, a new dimension ‘leadership’ was included based on reviews of other OI models. However, the items for this dimension were mostly derived from Albrecht’s (2002) instrument itself as they were embedded in all the seven dimensions of Albrecht’s (2002) instrument. Besides, items from Faletta’s (2008) OI instrument were also incorporated for this new dimension, which brought the total number of items to 50.

#### **b) Digital Government Service Quality**

The digital government service quality items used in this study were primarily derived from e-GovQual instrument (Papadomichelaki and Mentzas, 2012). E-GovQual was developed to measure citizens' perceptions of service quality from e-government sites or portals. It consists of 4 dimensions and 21 items. The selection of this instrument was primarily due its suitability for digital government service quality as compared to other generic service quality models. Additionally, it is one of the most widely used model in measuring service quality of government’s online services (Albar et al., 2018; Jansen and Ølnes, 2016; Napitupulu, 2016; Rasyid and Alfina, 2017; Saputra, 2018; Sayin and Okursoy, 2013).

Some of the studies from 2013 to 2020 that employed e-GovQual instrument is illustrated in Table 3.7.

**Table 3.7***Previous studies that employed e-GovQual instrument*

	<b>Past studies</b>	<b>Target population</b>	<b>Instrument validation</b>
1.	Sayin and Okursoy. (2013)	280 citizens	Cronbach Alpha coefficient - 0.95
2.	Hu et al. (2014)	1,372 government employees	Adapted with other instruments. Cronbach alpha - 0.81-0.9 for each construct
3.	Qasem and Zolait (2016)	631 service users	Modified with the inclusion of other instrument Cronbach alpha for each construct: 0.734 – 0.898
4.	Napitupulu (2016)	102 service users	Cronbach alpha : Efficiency 0.952, Trust (0.816), Reliability (0.947), Citizen Support (0.903).
5.	Haryani (2016)	90 end users	Cronbach alpha >0.909
6.	Gupta and Suri (2017)	87 system users	Modified with the inclusion of other criteria: PSP - 0.81 and DLP - 0.70
7.	Rasyid and Alfina (2017)	60 users	Modified along with other instruments: Cronbach Alpha: 0.7-0.8
8.	A Rahman et al. (2018)	377 users	Adapted in website design construct: Cronbach alpha: 0.871
9.	Albar et al. (2018)	247 users	Each measured item was valid and reliable because they meet the minimum requirement. The validity test in this study using corrected item-total correlation score and Cronbach Alpha for reliability test.
10.	Saputra (2018)	100 users	Reliability and validity testing were carried out – no detail.

11.	Hidayah et al. (2019)	233 application users	Cronbach Alpha: Efficiency (0.804), Reliability (0.869), Trust (0.862), Citizen Support (0.856)
12.	Wijatmoko and Siregar (2019)	120 respondents	Cronbach Alpha: Efficiency (0.832); Trust (0.896); Reliability (0.846); Citizen Support (0.878)
13.	Li and Shang (2020)	1,650 service users	Modified along with other instruments: Cronbach alpha: 0.731-0.877
14.	Kumar et al. (2020)	378 users	Efficiency – 0.910 Trust – 0.910 Citizen support – 0.834 Reliability – 0.766

Since e-GovQual was developed for the users' evaluation, the items were fine-tuned to serve the service providers' evaluation context during the preliminary review. At the same time, a new dimension 'transparency' was included after reviewing other digital government service quality models and due to its emphasis in UNEGDI assessment (UN, 2020). Hence, items from Karkin and Janssen (2016) along with UN (2020) were utilised to generate items for this dimension. Besides, the 'trust' dimension was renamed to 'assurance and trust' and the items were incorporated with Lai's (2006) E-Business SERVQUAL items to reflect the service providers' perspective.

### c) Occupational Stress

The main source for item generation for occupational stress was the Job Stress Scale (Parker and Decotiis, 1983). The 13-item instrument measures two important component: time stress and anxiety. Despite the instrument being very old, it is still relevant and used in recent studies (Dwiyanti et al., 2020; Koon and Tee, 2020; Kuo et al., 2022; Syed et al., 2020; Viegas and Henriques, 2020). However, some of the items were rephrased during the preliminary review process to simplify and improve the understandability among the respondents. Details on the

use of Parker and Decotiis (1983) Job Stress Scale validation in past studies presented in Table 3.8.

**Table 3.8**

*Previous studies that employed Parker and Decotiis's (1983) Job Stress Scale*

	<b>Past Studies</b>	<b>Target Population</b>	<b>Instrument validation</b>
1	Parker and Decotiis (1983)	367 managers of large chain restaurant	Cronbach Alpha – Time stress $\alpha = 0.86$ Job anxiety $\alpha = 0.74$
2	Jamal (2009)	full-time self-employed and organisationally employed individuals in Canada (248 employees) and Pakistan (306 employees).	Cronbach alpha - 0.87 (Canada) 0.84 (Pakistan)
3	Yozgat et al. (2013)	424 public sector employees	Cronbach alpha – 0.88
4	Rizeanu and Teodor (2015)	Pilot study: 36 university students	Not stated
5	Fisher et al. (2016)	249 IT workers (SMEs) and 200 IT workers (large organisations).	Cronbach alpha – 0.90 (SME) and 0.92 (large IT organisations)
6	Huang et al. (2018)	455 hotel employees	Composite reliability – 0.94
6	Bani-Melhem et al. (2018)	328 employees of four- and five-star hotels	Composite reliability – 0.90 Cronbach alpha – 0.88
7	Kokoroko and Sanda (2019)	216 nurses in hospital outpatient department	Cronbach alpha – 0.84
8	Koon and Tee (2020)	144 employees of the consumer services companies	Cronbach alpha - 0.85.
9	Syed et al. (2020)	691 telecommunication and banking sectors' employees	Cronbach alpha – 0.91
10	Dwiyanti et al. (2020)	274 employees of retail companies	Cronbach alpha – 0.88
11	Rabiah et al. (2020)	83 bank employees	Cronbach alpha – more than 0.7
12	Hassan and Husain (2020)	260 working professionals in government and private sector	Cronbach alpha – 0.88

13	Ehido et al. (2020)	100 academics from public universities	Cronbach alpha - 0.750 to .965
14	Viegas and Henriques (2021)	100 Police officials	Not stated
15.	Kuo et al. (2022)	380 tour leaders	Cronbach's alpha - between 0.818 - 0.951
16.	Johnson and Rohde (2022)	215 healthcare professionals	Cronbach's alpha – 0.90

**d) Finalised Items and Scale**

A total of 88 items were generated in the initial pool of items: OI Traits (50 items), occupational stress (13) items, digital government service quality (25 items). Other important aspects such as scale type and the number of scale points were also taken into considerations during the preliminary review (Artino et al., 2014; Hair et al., 2019; Podsakoff et al., 2003; Sekaran and Bougie, 2010). For instance, all the scale response categories were converted to a 7-point scale to increase the variability in the data and more accurate statistical analysis (Hair et al., 2016; Likert, 1932; Boateng et al., 2018). Next, category labels were only used at the ends of the agreement-scales as suggested (Hair et al., 2016; Morrel-Samuels, 2002; Weijters et al., 2010) so the respondent perceives them as being equally distant apart. To measure perceived service quality, 7-point Likert scale (frequency) was used to assess the service providers' role in sustaining the service quality as opposed to the agreement scale used in the original instrument. This approach was taken to match the response scale with the items (Artino et al., 2014) and considering the tendency of agreement scale in creating biased responses as opposed to frequency scale with percentage or ratings (Morrel-Samuels, 2002).

The details are tabulated in Table 3.9.

**Table 3.9***Initial Pool of Items*

<b>Variable</b>	<b>Dimensions</b>	<b>No. of Items</b>	<b>Source</b>	<b>Scale</b>
<b>OI Traits</b>				
	Leadership	13	<i>Albrecht (2003), Falletta (2008)</i>	7-point Likert Scale (Agreement): 1-strongly disagree to 7-strongly agree)
	Strategic Vision	5	<i>Albrecht (2003)</i>	
	Knowledge Deployment	4	<i>Albrecht (2003)</i>	
	Heart	5	<i>Albrecht (2003)</i>	
	Shared Fate	6	<i>Albrecht (2003)</i>	
	Alignment and Congruence	7	<i>Albrecht (2003)</i>	
	Appetite for Change	5	<i>Albrecht (2003)</i>	
	Performance Pressure	5	<i>Albrecht (2003)</i>	
<b>Total</b>		<b>50</b>		
<b>Digital Government Service Quality</b>				
	Efficiency	7	Papadomichelaki and Mentzas (2012)	7-point Likert Scale (Frequency) 1-Never to 7-Frequently
	Assurance and Trust	3	Papadomichelaki and Mentzas (2012), Lai (2006)	
	Reliability	6	Papadomichelaki and Mentzas (2012)	
	User Support	4	Papadomichelaki and Mentzas (2012)	
	Transparency	5	Karkin and Janssen (2016), UN (2020)	
<b>Total</b>		<b>25</b>		
<b>Occupational Stress</b>				
	Time Stress	8	Parker and Decotiis (1983)	7-point Likert Scale (Agreement): 1-strongly disagree to 7-strongly agree)
	Anxiety	5	Parker and Decotiis (1983)	
<b>Total no. of items</b>		<b>13</b>		



### **3.3.1.3 Step 3: Content Validity via Expert Reviews**

To serve the purpose of this study, the content validity was conducted via expert reviews (Clark and Creswell, 2015) to examine the wording of the items, technical or specific terms that can be misunderstood by the respondents of public sector. In addition to that, it also aimed at examining if each construct is collectively represented by the proposed dimensions and items, as to whether any of them need to be removed or included to the scale (Hair et al., 2019; MacKenzie, 2011).

Prior to submitting, preliminary review was done on the item pool, so they were in line with the operational definition and public service organisation context (Boateng et al., 2018; MacKenzie et al., 2011). Besides, some of the items in the original version of the scales were complex and lengthy which may lead to misinterpretation and ambiguity among the respondents of this study who are the public service personnel. Hence, the scale items were reviewed by redefining ambiguous terms, keeping the items simple and specific as well as removing double-barrelled items (Artino et al., 2014; Hair et al., 2019; Podsakoff et al., 2003; Sekaran and Bougie, 2010). Nevertheless, the original items were still presented to the experts for review along with the revised items.

The experts were selected from various background to ensure a comprehensive representation of this study domain (Table 3.10). In terms of required number of experts, nine experts participated in the content validity process of this study, comprising six from the academic sector and three from the public sector, which is still considered adequate as recommended by scholars (Boateng et al., 2018; Hair et al., 2019; Rubio et al., 2003; Zhu et al., 2015).

**Table 3.10**

The profile of the experts involved in content validity process.

	<b>Expert's Designation/ Title</b>	<b>Organisation</b>	<b>Field of expertise</b>
1	Professor, Specialist	Multimedia University Malaysia	Knowledge Management and Innovation, Multimedia Digital Archiving.
2	Associate Professor	Business School, University of Nottingham Malaysia	E-Government, E-Business, performance measurements, and customer relationship management.
3	Associate Professor		quantitative methods, bilateral trade among ASEAN countries, SME development.
4	Associate Professor		Evaluation and management innovations, business/ technology valuations, sustainability.
5	Assistant Professor	Division of Applied Psychology, University of Nottingham Malaysia	work design, work-life balance and psychological well-being
6	Senior lecturer	Universiti Malaysia Kelantan	human-computer interaction, computing in social science, computer and society
7	Director	Ministry of Tourism and Culture Malaysia	Public sector human resource management, sociology, public policy.
8	ICT Consultant	The Malaysian Administrative Modernisation and Management Planning Unit.	Information system, knowledge management, public sector ICT project management.
9	Senior Principal Assistant Director	Ministry of Human Resource Malaysia	Public administration, strategic management, sustainability, Change management, public sector procurement system (eProcurement)

Following the expert reviews, 73 items were retained in the survey instrument. Items were discarded upon obtaining agreement from most of the experts. Details on the number of items

at each stage is explained in Table 3.11. The summarised details of the expert reviews can be found in Appendix 1.

**Table 3.11**

*Revision of items at each stage*

Variable	Dimensions	Initial Pool of Items	No. of Items (After Expert Review)	Details
<b>OI Traits</b>		<b>50</b>	<b>39</b>	
	Leadership	13	7	Example: Item under ‘Performance Pressure’ dimension: ‘senior and middle managers act to rehabilitate or remove failing managers, was proposed for elimination. This was due to inappropriateness of the item for the Malaysian public sector context, as removal of under-performing employees are usually done via top-down approach, in accordance with the public service circular.
	Strategic Vision and Decision Making	5	5	
	Knowledge Deployment	4	4	
	Heart	5	4	
	Shared Fate	6	5	
	Alignment and Congruence	7	6	
	Appetite for Change	5	4	
	Performance Pressure	5	4	
<b>Occupational Stress</b>		<b>13</b>	<b>13</b>	
	Time Stress	8	8	Example: Item under ‘Anxiety’ dimension: ‘I sometimes dread the telephone ringing at home because the call might be job-related’ was rephrased to ‘I sometimes worry about the phone calls or messages received at home as they might be job-related’. This is to reflect today’s nature of work context.
	Anxiety	5	5	
<b>Digital Gov. Service Quality</b>		<b>25</b>	<b>21</b>	
	Efficiency	7	5	Example: 2 initial items under the ‘Efficiency’ dimension: ‘information about field's completion in this e-government site is enough and ‘the information
	Transparency	5	4	
	Assurance and Trust	3	3	
	Reliability	6	5	

	User Support	4	4	displayed in this e-government site is appropriately detailed' are merged and rephrased to 'the service portal provides sufficiently detailed information for the completion of transaction. This was done after taking into consideration the focus of assessing the information of available service as opposed to generic information on the main digital government portal
Total no. of items		88	73	

In addition of survey items review, some experts also recommended to simplify and minimise the number of items after the pilot study. Besides, constructs such 'Appetite of Change', 'Heart' and 'Shared Fate' were said to have some similarities of its content and thus were recommended to be merged, if possible. These recommendations were taken into consideration so it can be further clarified with statistical analysis result during pilot study. Another important point addressed by the experts were the translation of the survey items to Malay language, so it is available in both English and Malay language to suit the nature of the respondents in this study. Hence, the translation of survey items from English to Malay language was done by using certified translator service who is a Malaysian public sector personnel with 19 years of work experience. The bilingual instrument was pre-tested with five potential respondents as explained in Step 5.

### **3.3.1.4 Step 4: Specifying the Measurement Model**

#### **a) Dimensionality of the Construct**

The dimensionality of the constructs is to be determined as to whether they represent unidimensional or multidimensional construct. According to MacKenzie et al. (2011) and DeVellis (2017), the construct is considered unidimensional if the important attributes have no unique aspects, and thus, removing any one of them will not affect the conceptual domain of the construct. Conversely, if the essential attributes describe unique features of the construct, and elimination of any attributes would restrict the conceptual domain of the construct, then the construct is regarded as multi-dimensional. If the construct is multidimensional, it also important to consider the nature of the relationship between the dimensions and the higher-order construct (MacKenzie et al., 2011).

In the context of this study, all the constructs, namely OI, occupational stress and digital government service quality were considered as multidimensional constructs. Each construct has its' unique characteristics which is represented by respective dimensions with a number of indicators that constitute it. Since the research model proposed in this study is a higher order model or hierarchical component models, all the constructs are considered higher order constructs which consist of lower and higher order components (Sarstedt et al., 2019).

#### **b) Formative versus Reflective Construct**

Essentially, when the construct is multidimensional, it is also important to examine the nature of the relationship between the dimensions and/ or indicators with their higher-order components (Finn and Wang, 2014). Specifically, there are four types of higher-order constructs, namely reflective-reflective, reflective-formative, formative-reflective, and formative-formative (Sarstedt et al., 2019).

In specifying the higher-order model type of this study, the OI traits were specified as third-order construct (reflective-formative-formative), while Occupational Stress and Digital Government Service Quality were specified as second order constructs (reflective-formative).

Generally, all the lower order components for the constructs were conceptualised as reflective indicators of the construct, as any changes in the number of indicators do not affect the construct (Finn and Wang, 2014). For instance, the 'Leadership' dimension of OI Traits has seven reflective indicators which is viewed as the manifestations of the dimension and also interchangeable without affecting the meaning of the construct. The same scenario is applicable for other lower order components too.

On the other hand, the higher order components for all the three constructs were viewed as formative dimensions, as they were uncorrelated (Finn and Wang, 2014) and collectively determine the focal construct (Jarvis et al., 2003; Peng and Lai, 2012). For example, the Digital Government Service Quality construct has often been conceptualised as representation of dimensions such as reliability, efficiency, trust, user support and transparency (Papadomichelaki et al., 2012). Conceptually, the service quality construct does not cause all its dimensions to change with the same magnitude in the same direction (MacKenzie et al., 2011). For instance, an increase of efficiency in the service is associated with an increase in service quality, without necessarily being associated with any changes in the other dimensions such as transparency and reliability. Hence, these dimensions are regarded as formative indicators to the main construct of the digital government service quality. The same case applies to the other two constructs as well, namely the OI Traits and Occupational Stress, as they are defined as combinations of relatively independent factors that collectively determine the latent construct. Nevertheless, OI Traits has an additional formative higher-order component, namely employee-oriented and organisation-oriented trait which jointly defined OI Traits and not interchangeable with one another. The third order components are defined by formative dimensions such as 'Shared Fate' and heart which constituted the 'employee-oriented' component.

### **3.3.1.5 Step 5: Pre-Testing of The Survey Items**

Research method scholars such as Kumar et al. (2013) and Sekaran and Bougie (2010) emphasised that all adopted and adapted scales need to be pre-tested to confirm its' usability in a new setting with the new respondents. Specifically, this process ensures the wording and sequencing of the survey items is correct, questions and instructions are clearly understood by the respondents and whether any items need to be included or eliminated (Kumar et al., 2013).

With regard to this, both Malay and English version of the survey were distributed to potential service providers as a confirmatory step to measure the effectiveness of the instrument when applied to the prospective respondents of this study. Hence, this process involved the evaluation of the respondents' understanding on the survey scales and instructions for each part as well as the wording of the items in both English and Malay language, prior to pilot study phase (Boateng et al., 2018). Their insights would be helpful in minimising issues of misunderstanding and cognitive burden on the respondents (Boateng et al., 2018). Since pretesting requires small number of respondents between 5 to 15 (Boateng et al., 2018; Sekaran and Bougie, 2010; Willis, 2005), five respondents participated in this process. The background of the respondents participated in the pretesting process is as follows (Table 3.12).

**Table 3.12**

*The profile of respondents involved in pre-testing process*

	<b>Organisation</b>	<b>Team/ Unit</b>	<b>Digital services</b>
1.	The Malaysian Administrative Modernisation and Management Planning Unit.	Project Management Office Unit	MalaysiaBiz Portal: Business Registration and Licensing
2.	The Malaysian Administrative Modernisation and Management Planning Unit.	Public Sector ICT Initiative Section - Digital Government Division	MyGovernment Portal, Digital government systems across the country
3.	The Malaysian Administrative Modernisation and Management Planning Unit.	Business process team	MyPortfolio: Public Sector Work Guidelines.
4.	Public Service Department of Malaysia	Business process team	Human Resource Management Information System
5.	Ministry of Federal Territory, Malaysia	Technical Support Team	Portal Residensi Wilayah: Affordable Housing Scheme

Based on the pretesting, respondents generally felt that the bilingual key definitions, items, instructions and scale were clear and understandable. There was no comment on the length of

the questionnaire too. However, minor enhancement on the instrument were done, mostly on the standardisation of terms such as digital services to avoid confusions with digital system, and some new wording suggestion for Malay language items. At the same time, instruction was clearly stated so the respondent only assess one digital services. This is due to the nature of service providers job who takes charge of more than one digital services. Hence, the selection of one particular digital service will serve the need of this study as different type of services are handled and monitored differently by various personnel. The sample of feedback obtained from the pretesting process is attached in Appendix 2.

**a) Actions Taken to Minimise Common Method Bias**

Potential sources of method bias in this study are consistency motifs and social desirability bias. Since this study measures perceptions of the service providers on their organisation, leaders, employees and themselves, there are tendencies to trigger these form of method biases. Specifically, respondents may want to appear consistent and rational towards similar items, or rather present themselves in a more favourable and culturally acceptable manner regardless of their true perceptions about the issues (Podsakoff et al., 2003).

As for the context of this study, potential tendency of individual subjects to be biased toward either high score or low score for their own organisation's digital service performance, will tend to cancel out, as the items do not reflect solely on their own team's task but rather representation of multiple team's tasks. Additionally, some studies stated that self-reports do not necessarily undermine the construct validity. For instance, Lance et al. (1992), Lance and Vandenberg (2009) and Shalley et al. (2009) argued that employees are best suited to self-rating, particularly involving mechanical aptitude and job experience, since it revolves around the subtle tasks that they do.

Following the arguments above, the instrument and data collection method are designed as follows to minimise potential method biases:

- a) revision of the order of questions within each variable to minimise method bias. Hence, the items were not grouped by dimensions, but were rather positioned randomly based



other relevant grouping such as by employees, top management and organisation in general perspective. The purpose of doing this is to create psychological separation to minimise respondents' ability or motivation to use his previous response to answer subsequent answer (Peterson, 2000; Podsakoff et al., 2003; Hair et al., 2019).

- b) Revision of the frequency scale used for digital government service quality. As the term 'frequently' used in the scale is subjective, it has been argued that quantifying the labels can avoid ambiguity (Robinson, 2018). As there is no standardised guideline that defines frequent assessment of service quality, the term "frequently" was referred to as 'periodical assessment and monitoring as stipulated in the organisation's SOPs and quality standards.
- c) Inclusion of 3-item marker variable from Cognitive Rigidity Scale (Oreg, 2003).

### **3.3.1.6 Step 6: Conducting Pilot testing and Refining the Scale**

#### **a) Pilot Study Approach**

The importance of conducting pilot study is irrefutable, whether it involves the development of new or adapted scale (Johanson and Brooks, 2010). Essentially, this phase helps to identify potential issues, as to whether the instrument has clear and appropriate language, has research protocol that is realistic and no apparent errors prior to being administered in a full-scale study (Ruel et al., 2016; Memon et al., 2017). All in all, pilot study gives better insights on the response rate and the entire study procedure in terms of its feasibility from start to finish (Ruel et al., 2016).

Determination of sample size during pilot study is vital so it fulfils the intended purpose of the study at this stage. There have been varying recommendations on the number of participants for pilot testing, including a range between 24 to 36 (Johanson and Brooks, 2010), 30 to 100 (Ruel et al., 2016) or 25 to 100 (Cooper and Schindler, 2011) or even as little as 10 to 30 individuals (Hill, 1998; Isaac and Michael, 1995). Nevertheless, it is important to note that sample size can also be determined based on the type of analysis at the preliminary stage (Cooper and Schindler, 2011). As such, if factor analysis including EFA or CFA is to be employed, larger samples are required (Hair et al., 2019). Essentially, the ratio ranges from as

low as 3:1 (Cattell, 1978), 5:1 (Hair, Black et al., 2018), 1:10 (Everitt, 1975; Hair et al., 2019; Nunnally, 1978) or even as high as 20:1 (Hair et al., 1979). Besides, some scholars argue that the sample size of 100 is adequate for the factor analysis (Allen et al., 2014; Bahkia et al., 2019; Gorsuch, 1983; Hair et al., 2010; Kline, 1979; Rahlin et al., 2019, 2020; Shkeer and Awang, 2019). On the other hand, some recommend a minimum of 250 samples (Cattell, 1978) or rather consider 300 samples and above as a good sample size (Comrey and Lee, 2002).

Following this, the pilot study was conducted in March and April 2021 in two public departments namely, the Prime Minister’s Department and the Ministry of Entrepreneur Development and Cooperation (MEDAC). Eleven (11) agencies under these departments were selected using convenience sampling to serve the purpose of this pilot study. Firstly, the Chief Information Officer of each agency were approached via email to seek their approval to conduct pilot study. Information on the study background target respondent, mode of study, timeline and ethics approval were explained in the email. Based on the response obtained, only ten agencies agreed to join the pilot study. Details of the agencies are as presented in Table 3.13.

**Table 3.13**

*Details of agencies approached during pilot study phase*

<b>Department/ Agency</b>	<b>No. of Available Digital Services (G2C and G2B)*</b>	<b>Participation Consent</b>
<b>Prime Minister’s Department</b>		
Public Service Commission of Malaysia	7	Approved
Public Service Department of Malaysia	6	Approved
Malaysian Department of Insolvency	12	Approved
Malaysian Administrative Modernisation and Management Planning Unit	6	Approved
Election Commission of Malaysia	3	Approved
Attorney General’s Chamber of Malaysia	3	Approved
Department of Statistics Malaysia	18	Approved
Education Services Commission	5	Approved

<b>MEDAC</b>			
Malaysian Commission	Cooperative	13	Approved
MEDAC (Headquarters)		3	Disapproved
Contractor Service Centre		2	Approved
<b>Total</b>		<b>78</b>	

*Source: MAMPU (2020)*

The survey was distributed to the respondents via both online and offline mode, depending on the preference of the agencies. Prior to survey distribution, the focal person assigned by the CIO of each agency were briefed about the survey and target respondents. Next, email with details on survey links and targeted respondents was sent to the respective focal person. Since some respondents are in charge of more than one digital services, no pre-selection was made to allow the respondents assess any particular system they are in charge of. Besides, this will also give more randomised and wide range of digital services for the study. The pilot study survey questions can be found in Appendix 4. Following this, 158 survey forms comprising 59 (manual) and 99 (online) were returned. After preliminary screening, 25 survey forms were discarded due to incomplete surveys and the ones with wrongly assessed digital services. Hence, a total of 133 completed survey was used for the analysis purpose. This is deemed sufficient to run PLS-SEM analysis based on the minimum threshold of 80 and 109 samples as determined via 10-times rule and power analysis (Barclay et al., 1995; Hair et al., 2017), or even to run factor analysis (Allen et al., 2014; Bahkia et al., 2019, 2020; Hair et al., 2010; Kline, 1979; Shkeer and Awang, 2019).

#### **b) Scale Purification and Refinement Approach**

Based on Mackenzie et al. (2011), scale development involves evaluation of goodness of fit for the measurement model, assessment of reliability and validity of the indicators at the construct level and finally elimination of problematic indicators. Besides, there are also other aspects such as statistical analysis approach to look into since the research model of this study is a predictive oriented model, consisting of higher order constructs and adapted scale which need to be confirmed in terms of its factor structure. Since the structural equation modeling (SEM) technique is be used, it is important to select between covariance-based SEM or Partial Least Square SEM approach which is further explained in the following section.

**a. Structural Equation Modeling: Covariance-based Structural Equation Modeling versus Partial Least Square Structural Equation Modeling**

Structural Equation Modeling (SEM) is a statistical modeling technique which combines factor analysis and regression or path analysis (Hox and Bechger, 1999). Generally, there are two types of SEM, namely, covariance-based SEM (CB-SEM) and partial least squares (PLS-SEM). The selection between these two approaches is to be made based on the research objectives, sample size and model complexity, data property and the conceptualization of the constructs (Peng and Lai, 2012).

Firstly, the significant difference between CB-SEM and PLS-SEM is that the former is a preferred method for theory testing, theory confirmation, or the comparison of alternative theories (Hair et al., 2017). Conversely, PLS-SEM is preferred when the primary goal is to predict and explain the key constructs and/or identify the key driver constructs (Hair et al., 2017; Rigdon, 2012). In other words, it is aimed at assessing the extent to which one part of the research model predicts the values in the other parts of the research model (Peng and Lai, 2012).

In terms of sample size and data model complexity, CB-SEM requires larger sample sizes than partial PLS-SEM due to estimation techniques (Hair et al., 2017; Ringle et al., 2018; Ryan, 2020). In the similar context, Peng and Lai (2012) suggested that complex models involving multi-level analysis, mediation and moderation analyses, and higher-order constructs will increase the total number of parameter estimates, and potentially lead to model identification and convergence issues in CBSEM. Hence, PLS-SEM is often preferred for complex models. Thirdly, CB-SEM does not cater data that is not normally distributed, and thus considered less flexible in terms of data distribution (Ramayah et al., 2017). On the contrary, PLS-SEM is preferred when data is not normally distributed and sample size is small (Hair et al., 2017; Hair et al., 2014).

Lastly is the conceptualisation of the constructs factor. PLS-SEM is a preferred approach when the research model consists of formative constructs (Hair et al., 2017; Hair, Risher et al., 2018; Peng and Lai, 2012; Hair et al., 2014). Hence, when research models consist of formative

constructs, or combination of both reflective and formative constructs, PLS-SEM has advantage over CB-SEM (Ramayah et al., 2017). PLS-SEM is also capable of handling complex cause-effect structural models with many constructs and indicators (Hair et al., 2017; Richter et al., 2016; Rigdon, 2012, 2014).

Based on the arguments earlier, this study employed PLS-SEM due to the following justifications:

- a) this study is not aimed at theory testing but rather examining the predictive relevance of hypothesised relationships in the public sector context. Specifically, it is a predictive oriented model that examines the extent to which OI traits predict the values in the other parts of the research model which are the occupational stress and service quality.
- b) the research model is recursive and complex, comprising three higher-order constructs with formative and reflective indicators, as well involving mediation analysis which fulfil the selection criteria of using PLS-SEM (Hair et al., 2019; Peng and Lai, 2012).

Following this, the SmartPLS 3.0 will be used as the analysis tool to measure and evaluate the research model. Additionally, the statistical package for the social science (SPSS) version 16.0 will be used along with Statistical Power Analysis using Webpower to run data normality tests.

## **b. Exploratory versus Confirmatory Factor Analysis**

According to Henson and Roberts (2006), EFA is theory generation method whilst CFA is a theory testing method. Therefore, EFA can be employed when little is known regarding the underlying factor structure and number of factors (McNeish, 2016; Green et al., 2016). As such, EFA is employed for new scale development process, particularly when the structure of the data or the number of dimensions to the items are yet to be determined (Gorsuch, 1983; Hair et al, 2019; Pallant, 2007; Reise et al., 2000). The use of EFA for established and validated scale are deemed unnecessary (Hulland et al., 2017), particularly when it is used to test changes in factor structure due contextual differences such as culture (Memon et al., 2017).

Conversely, CFA is used when a priori factor structure exists, as in the data structure and the number of dimensions to the items are known (Gorsuch, 1983; Green 2016). CFA is essentially employed to assess and confirm the measurement theory, as to how the measured variables represent a latent construct in a theoretical model (Hair et al., 2010; Ramayah et al., 2018). As such, CFA is considered sufficient for this study provided the adapted or adopted questionnaire is well designed with the theoretical and literature support, along with thorough pre-testing process (Memon et al., 2017). Though some new dimensions were added into the original scale, the factor structure is known and only need to be confirmed via CFA approach. In relating SEM with CFA, it is important to note that CFA is essentially represented by the first step of SEM tests, the measurement model test (Hair et al., 2017). The subsequent structural test is performed upon satisfactory construct validity fulfilment during CFA. The analysis process, finding and the revised instrument is discussed in Chapter 4.

### **c) Pilot Study Analysis Outcome**

#### **a. Data Screening**

A total of 158 completed were received via both online and offline platform. After preliminary screening, 25 survey forms were discarded due to incomplete surveys, straight lining responses and the ones with wrongly assessed digital services. Hence, a total of 133 completed survey was used for the analysis purpose.

#### **b. Descriptive Analysis**

### **Respondents Demographic Profile**

A total of 133 completed responses were involved in this study. This number was deemed sufficient as it meets the minimum sample size requirement (109 samples) for PLS-SEM analysis, as determined by power analysis (G\*Power). The respondents' background was examined in terms of their genders, service scheme and group to obtain better perspective of the digital service providers involved in the study. Based on the 133 complete responses obtained, 48 (36.1%) were males while 85 (63.9%) were females (Table 3.14). In terms of

service scheme (Table 3.14), the respondents were mostly from IT services and administrative scheme comprising 57 (42.9%) and 66 (49.6%) respectively. Other service schemes such as economy, finance and legal represented only 10 (7.5%). Essentially, the personnel from technical scheme are the ones who provide technical support whereas the administrative and other schemes are the one handling business process pertaining the digital services. At the same time, 74 (55.6%) were management and professional personnel and the remaining 59 (44.4%) were the supporting personnel (Table 3.14).

**Table 3.14**

*Respondents' Profile by Gender, Service Scheme and Service Group.*

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Gender</b>	Male	48	36.1	36.1	36.1
	Female	85	63.9	63.9	100.0
	<b>Total</b>	<b>133</b>	<b>100.0</b>	<b>100.0</b>	
<b>Service Scheme</b>	IT Services	57	42.9	42.9	42.9
	Administrative services	66	49.6	49.6	92.5
	Others (Finance, Legal, Economic etc)	10	7.5	7.5	100.0
	<b>Total</b>	<b>133</b>	<b>100.0</b>	<b>100.0</b>	
<b>Service Group</b>	Management and Professional	74	55.6	55.6	55.6
	Support	59	44.4	44.4	100.0
	<b>Total</b>	<b>133</b>	<b>100.0</b>	<b>100.0</b>	

**c. Model Specification**

The model specification stage involves the set-up of the measurement and structural models (Hair et al., 2014). Since the research model of this study involves higher order constructs with reflective and formative components, several approaches such as repeated indicators approach and two-stage approach were considered for specifying higher order constructs in PLS-SEM. In comparison, the two-stage approach was argued to demonstrate better parameter recovery of paths as opposed to the repeated indicators approach (Sarstedt et al., 2019). The two-stage approach was also recommended when the research model involves a formative higher order latent variable model in an endogenous position (Ringle et al., 2012; Gaskin and Lowry, 2014).

Following this, disjoint two-stage approach was used for this pilot study as recommended by Becker et al. (2012), who claimed that this approach yields less biased, more accurate parameter estimation and reliable score. Essentially, this approach was tested and produced unbiased outcome despite unequal number of indicators on the lower-order constructs or when formative higher order latent variable is in endogenous position (Becker et al., 2012; Sarstedt et al., 2019; Ringle et al., 2012).

The path model was created using SmartPLS 3.3.3 to connect the constructs as hypothesised in Chapter 2. As this study employed disjoint two-stage approach, the measurement model assessment consisted of two stages to assess the lower-order and higher-order components of the construct respectively. Next, the structural model was specified by only considering the higher-order components (Sarstedt et al., 2019). This is further explained in the next sections.

#### **d. Assessment of the Measurement Model**

This pilot study employed disjoint two-stage approach with mode B for the reflective lower order component and mode A for the formative higher order component (Bercker et al., 2012). The measurement metrics used were based on the type of higher order construct involved in this study, which is formative-reflective ((Sarstedt et al., 2019).

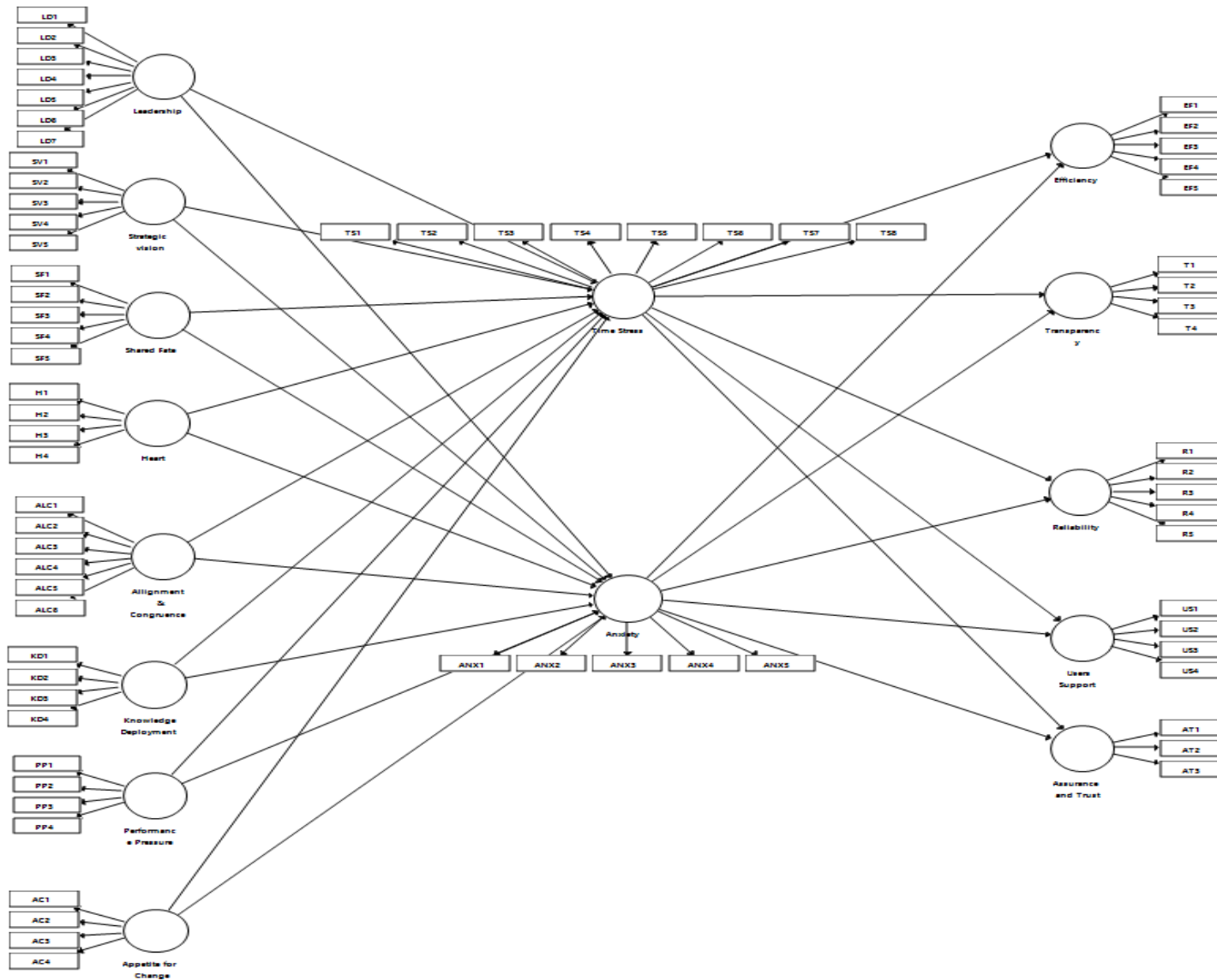
#### **First Stage of Disjoint Two-stage approach: Assessment of the Lower Order Components**

The model assessment firstly focused on the reflective measurement models of the lower-order components for all the constructs in the path model (Figure 3.3). These components were linked to all other components as to how the higher-order construct was theoretically linked to (Sarstedt et al., 2019).

#### **Figure 3.3**

Path Model for Lower Order Components





Since all the lower order components in this model comprise reflectively specified components, the measurement model was estimated via Mode B and tested for its' outer loading, internal consistency, convergent validity and discriminant validity. The findings are summarised in Table 3.15.

### **Stage 2: Assessment of Formative Measurement Model for Higher Order Constructs.**

Since all the higher-order components for all the constructs were formative components, they were examined for its convergent validity, indicator collinearity, and lastly statistical significance and relevance of the indicator weights. Prior to that, the latent variable's scores for the lower order components were retrieved to create and estimate the stage two model. Specifically, the lower-order components of Stage 1 are specified as items of the higher-order components in this model (Figure 3.3). The outcome of the assessment is summarised in Table 3.20.

**Table 3.15**

## Summary of Reflective Lower-Order Components Assessment

<b>Assessment</b>	<b>Analysis Outcome</b>	<b>Action Taken</b>
<b>Indicator's Loading</b>	Based on the indicators loading for the lower-order components (Table 3.16), all loadings were above 0.708 (Hair et al., 2018) except R2 (.624), T3 (.495) and T4 (.372).	Indicator with the lowest loading, T4 (.372) were first deleted. The deletion of T4 led to an increase of AVE value of Transparency component to an acceptable value of more than 0.5 from 0.478 to 0.608 (Hair et al., 2017). Hence, T3 and R2 were retained as the composite reliability and the AVE values have already met the required cut-off value (Hair et al., 2017).
<b>Internal consistency reliability</b>	Based on the internal consistency reliability analysis of both Cronbach's alpha (lower bound) and composite reliability (upper bound) in Table 3.17, all components demonstrated high reliability with values above 0.7 (Hair et al., 2017; Hair et al., 2018).	All items were retained
<b>Convergent validity</b>	AVEs for all components are higher than 0.5 including the Transparency component's value, which increased to 0.591 after the deletion of low loading item (T4) – Table 3.17.	All items were retained
<b>Discriminant validity</b>	Most of the components demonstrated HTMT values above 0.90 (Table 3.18), signifying the components of are not distinct among one another (Hair et al., 2018). Following this, $HTMT_{inference}$ values was assessed with complete bootstrapping with 500 subsamples at 0.10 significance level (Henseler et al., 2015). The lower and upper confidence intervals for all the components did not include the value of 1.0 except for 7 combinations of components under the OI Traits and Occupational Stress, indicating these components are not empirically distinct (Henseler et al., 2015; Hair et al., 2017). (Table 3.19)	HTMT was decreased by increasing the average monotrait-heteromethod correlations and decreasing the average heteromethod-heterotrait correlations of the problematic construct measures (Henseler et al., 2015). Based on inter-items correlation and items cross-loadings, 2 items were discarded (KD4, SF3) and 1 item (ALC6) were reassigned to Knowledge Deployment component. This action reduced the number of combinations with HTMT problems from 7 to 5 (Table 3.19). However, other items were retained after examining the relevance to the assigned component and to comply with the statistical requirement (Tabachnick & Fidell, 2007; An & Pearce, 2013; Hair et al., 2010).

**Table 3.16***Outer Loading for Items by for the Lower-Order Components*

<u>Indicator</u>	<u>Loading</u>	<u>Indicator</u>	<u>Loading</u>	<u>Indicator</u>	<u>Loading</u>	<u>Indicator</u>	<u>Loading</u>
<u>Org Intelligence Traits</u>		<u>Digital Government Service Quality</u>			<u>Occupational Stress</u>		
H1	0.912	SV4	0.905	AT1	0.875	ANX1	0.835
H2	0.935	SV5	0.903	AT2	0.874	TS1	0.880
H3	0.937	PP1	0.920	AT3	0.914	ANX2	0.884
H4	0.898	PP2	0.938	EF1	0.858	TS2	0.892
KD1	0.909	PP3	0.895	EF2	0.91	ANX3	0.707
KD2	0.847	PP4	0.886	EF3	0.847	TS3	0.831
KD3	0.899	AC1	0.887	EF4	0.897	ANX4	0.881
KD4	0.814	AC2	0.822	EF5	0.850	TS4	0.886
LD1	0.905	AC3	0.704	R1	0.914	ANX5	0.885
LD2	0.908	AC4	0.872	R2	<b>0.624</b>	TS5	0.838
LD3	0.890	ALC1	0.926	R3	0.930	TS6	0.878
LD4	0.94	ALC2	0.945	R4	0.916	TS7	0.890
LD5	0.936	ALC3	0.961	R5	0.797	TS8	0.858
LD6	0.867	ALC4	0.909	T1	0.947		
LD7	0.802	ALC5	0.902	T2	0.794		
SF1	0.879	ALC6	0.853	T3	<b>0.495</b>		
SF2	0.905			T4	<b>0.372</b>		
SF3	0.927			US1	0.954		
SF4	0.921			US2	0.876		
SF5	0.917			US3	0.957		
SV1	0.915			US4	0.948		
SV2	0.934						
SV3	0.887						

Note: The numbers in bold type font indicate outer loading values below 0.7

**Table 3.17**

*Composite Reliability and Average Variance Extracted of the Lower-Order Components Construct*

	<b>Cronbach's Alpha</b>	<b>Composite Reliability</b>	<b>Average Variance Extracted (AVE)</b>
Alignment and Congruence	0.961	0.968	0.837
Anxiety	0.895	0.923	0.708
Appetite for Change	0.851	0.898	0.688
Assurance and Trust	0.869	0.918	0.788
Efficiency	0.924	0.942	0.766
Heart	0.940	0.957	0.848
Knowledge Deployment	0.890	0.923	0.751
Leadership	0.958	0.965	0.800
Performance Pressure	0.932	0.950	0.827
Reliability	0.899	0.924	0.713
Shared Fate	0.948	0.96	0.829
Strategic vision	0.947	0.959	0.825
Time Stress	0.953	0.961	0.754
Transparency	0.813 (0.758)	0.765 (0.816)	0.478 (0.608)
Users Support	0.952	0.965	0.874

Note: *The figure in the bracket denotes the changes of values after the deletion of item T4*

**Table 3.18**

*HTMT values of the Lower-Order Components Construct*

	ALC	ANX	AC	AT	EFY	HT	KD	LD	PP	RY	SF	SV	TS	TR
ANX	0.420													
AC	0.977	0.342												
AT	0.710	0.365	0.736											
EFY	0.684	0.373	0.753	0.918										
HT	0.856	0.456	0.948	0.781	0.729									
KD	0.990	0.410	1.008	0.761	0.719	0.958								
LD	0.837	0.360	0.871	0.713	0.655	0.842	0.912							
PP	0.88	0.394	0.965	0.781	0.75	0.948	0.959	0.869						
RY	0.734	0.347	0.775	0.928	0.911	0.798	0.774	0.694	0.815					
SF	0.841	0.411	0.943	0.748	0.734	1.003	0.951	0.844	0.943	0.77				
SV	0.918	0.323	0.943	0.678	0.637	0.855	0.984	0.877	0.872	0.676	0.856			
TS	0.393	0.997	0.346	0.344	0.355	0.448	0.384	0.319	0.372	0.349	0.409	0.304		
TR	0.493	0.153	0.55	0.71	0.631	0.486	0.497	0.469	0.466	0.74	0.503	0.51	0.139	
US	0.761	0.445	0.757	0.894	0.775	0.778	0.776	0.706	0.776	0.855	0.772	0.697	0.425	0.654

\*Note: AC – Appetite for Change; AT – Assurance and Trust ; EFY – Efficiency; , HT – Heart; KD – Knowledge Deployment, LD - Leadership, PP – Performance Pressure, RY – Reliability , SV – Strategic Vision and Decision Making, TS – Time Stress, TR - Transparency, US – Users Support, SF – Shared Fate

**Table 3.19**

*Excerpt of HTMT inference values (Confidence Intervals Bias Corrected) that include the value of 1.*

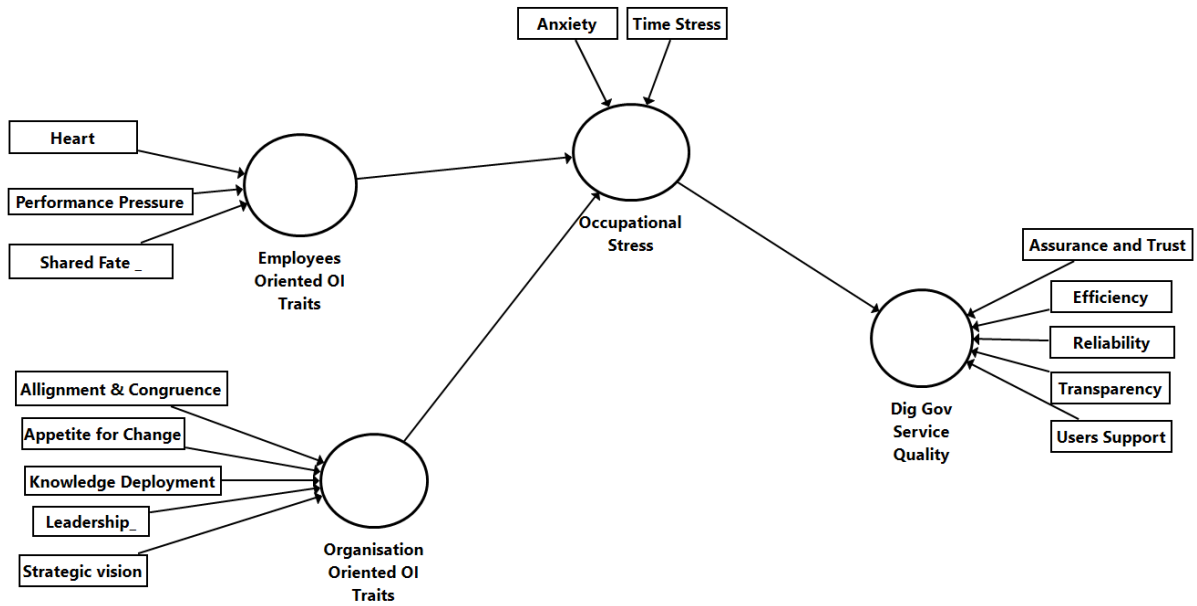
	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Bias</b>	<b>5.00%</b>	<b>95.00%</b>
Knowledge Deployment -> Appetite for Change	1.008 (1.025)	1.010 (1.025)	0.002	0.970 (0.992)	1.036 (1.051)
Time Stress -> Anxiety	0.997	0.999 (0.997)	0.002 (0.000)	0.965 (0.967)	1.021 (1.020)
Shared Fate _ -> Heart	1.003 (1.006)	1.003 (1.006)	0.000	0.986 (0.990)	1.015 (1.021)
Knowledge Deployment -> Alignment and Congruence	0.990 (0.974)	0.992 (0.975)	0.001	0.960 (0.947)	1.014 (0.996)
Appetite for Change -> Alignment and Congruence	0.977 (0.951)	0.978 (0.953)	0.001 (0.002)	0.933 (0.878)	1.012 (0.991)
Strategic Vision -> Knowledge Deployment	0.984 (0.978)	0.982 (0.977)	-0.002 (-0.001)	0.948 (0.935)	1.011 (1.005)
Performance Pressure -> Appetite for Change	0.965	0.964 (0.962)	-0.001 (-0.003)	0.918 (0.917)	1.009 (1.008)
Heart -> Appetite for Change	0.948	0.950	0.002	0.892	0.991
Knowledge Deployment -> Heart	0.958	0.958	0	0.917	0.987
Shared Fate _ -> Appetite for Change	0.943	0.944	0.001	0.876	0.986
Performance Pressure -> Knowledge Deployment	0.959	0.959	0	0.923	0.985
Strategic vision -> Appetite for Change	0.943	0.944	0	0.893	0.985
Efficiency -> Assurance and Trust	0.918	0.915	-0.003	0.820	0.984

Note: 1. The figure in the bracket denotes the changes of values after increasing the average monotrait-heteromethod correlations and decreasing the average heteromethod-heterotrait correlations of the problematic construct.

2. Full outcome of HTMT inference outcome is presented in Appendix 5

**Figure 3.4**

*Second Stage Model Comprising Formative Higher-Order Components*





**Table 3.20**

*Summary of Findings from Formative Higher Order Component Assessment.*

<b>Stage 2: Formative higher order component (Second Order Construct)</b>		
Convergent Validity	This analysis will be carried out during the actual study with the inclusion of global single item.	None
Indicator Collinearity	Outer Variance Inflation Factor (VIF) was examined as to whether the threshold value exceeds 5 (Hair et al., 2017). The analysis showed that 6 indicators have outer VIF values below 5.0, whilst 9 indicators have values of more than 5 (table 3.21). This indicated potential collinearity problem (Hair, Ringle, and Sarstedt, 2011).	The indicators were retained as they are relevant to the construct. Plus, discarding the formative indicators purely on statistical ground is not advisable (Hair et al., 2017). Besides, VIF scores are mostly still within the range of 10, which is considered a minimum threshold in multivariate models. (Hair et al., 2010).
Statistical significance of indicator weights	Basic bootstrapping using 5000 subsamples with BCa bootstrap confidence interval and two-tailed test at 0.05 significance level was used (Hair et al., 2017; Ramayah et al. 2018). Based on the p-values (Table 3.22), 11 out of 15 indicators, did not demonstrate significant outer weight ( $p > .05$ ).  The indicators with insignificant outer weight were further tested for absolute contribution of the indicators to the construct (Cenfetelli and Bassellier, 2009). All the problematic indicators demonstrated outer loading of more than 0.5 and t-values of more than 1.96. (Table 3.23).	All these indicators were retained as the corresponding items' outer loading were relatively high (i.e., $\geq 0.50$ ), or statistically significant (Hair et al., 2017).
statistical relevance of the indicator weights	The indicators weight range between -0.002 and 1.287, where mostly fell between -1 and +1 indicating normal result without collinearity or sample size issues (Hair, Black et al., 2018). Some indicators values indicated weak relationship (close to 0) while some demonstrated strong relationship with the construct (weight close to 1) (Table 3.22).	All the indicators were retained. 'Knowledge Deployment' and 'Heart' had values slightly above 1, which was further tested with larger sample size during actual data collection.

**Table 3.21***Outer VIF values for the higher-order component (Stage 1)*

	VIF
Shared Fate	10.486
Knowledge Deployment	10.211
Heart	9.849
Strategic vision	7.235
Time Stress	6.812
Anxiety	6.812
Alignment and Congruence	6.593
Appetite for Change	6.396
Performance Pressure	6.329
Assurance and Trust	5.000
Reliability	4.970
Efficiency	4.329
Leadership	3.924
Users Support	3.727
Transparency	2.303

**Table 3.22***P-values for the Higher-Order Components Outer Weight*

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV  )	P Values
Alignment and Congruence -> Organisation Oriented OI Traits	0.897	0.802	0.474	1.894	0.058
Anxiety -> Occupational Stress	0.570	0.520	0.585	0.974	0.330
Appetite for Change -> Organisation Oriented OI Traits	-0.319	-0.27	0.525	0.609	0.543
Assurance and Trust -> Dig Gov Service Quality	-0.126	-0.132	0.363	0.346	0.729
Efficiency -> Dig Gov Service Quality	0.465	0.451	0.344	1.35	0.177
Heart -> Employees Oriented OI Traits	1.287	1.226	0.521	2.469	0.014
Knowledge Deployment -> Organisation Oriented OI Traits	1.065	0.981	0.572	1.862	0.063
Leadership_ -> Organisation Oriented OI Traits	0.155	0.205	0.371	0.418	0.676
Performance Pressure -> Employees Oriented OI Traits	-0.069	-0.055	0.456	0.15	0.880
Reliability -> Dig Gov Service Quality	-0.002	0.043	0.417	0.006	0.995

Shared Fate _ -> Employees Oriented OI Traits	-0.244	-0.225	0.584	0.418	0.676
Strategic vision -> Organisation Oriented OI Traits	-0.903	-0.884	0.433	2.083	0.037
Time Stress -> Occupational Stress	0.449	0.473	0.588	0.763	0.445
Transparency -> Dig Gov Service Quality	-0.483	-0.479	0.232	2.086	0.037
Users Support -> Dig Gov Service Quality	1.020	0.949	0.296	3.448	0.001

**Table 3.23**

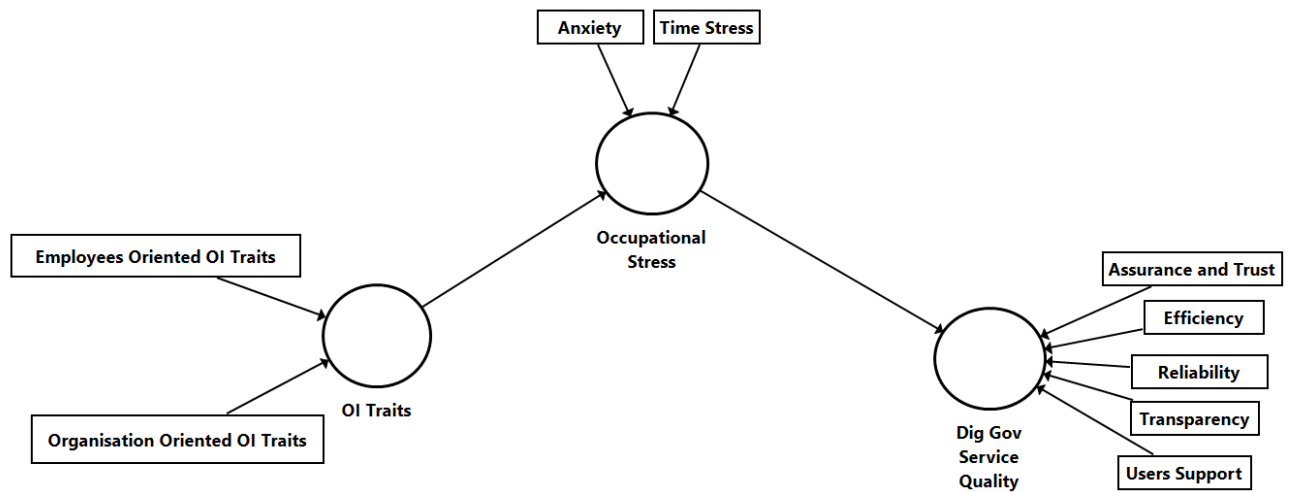
*The outer loading and T-values for the Higher-Order Component*

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values
Alignment and Congruence -> Organisation Oriented OI Traits	0.906	0.839	0.095	9.485	0
Anxiety -> Occupational Stress	0.985	0.958	0.057	17.323	0
Appetite for Change -> Organisation Oriented OI Traits	0.769	0.717	0.134	5.729	0
Assurance and Trust -> Dig Gov Service Quality	0.739	0.703	0.112	6.584	0
Efficiency -> Dig Gov Service Quality	0.777	0.739	0.115	6.782	0
Heart -> Employees Oriented OI Traits	0.995	0.965	0.045	22.077	0
Knowledge Deployment -> Organisation Oriented OI Traits	0.898	0.837	0.088	10.249	0
Leadership -> Organisation Oriented OI Traits	0.763	0.714	0.125	6.101	0
Performance Pressure -> Employees Oriented OI Traits	0.869	0.843	0.093	9.359	0
Reliability -> Dig Gov Service Quality	0.779	0.746	0.115	6.771	0
Shared Fate -> Employees Oriented OI Traits	0.905	0.879	0.087	10.425	0
Strategic vision -> Organisation Oriented OI Traits	0.711	0.663	0.121	5.856	0
Time Stress -> Occupational Stress	0.976	0.952	0.064	15.165	0
Transparency -> Dig Gov Service Quality	0.435	0.421	0.149	2.910	0
Users Support -> Dig Gov Service Quality	0.925	0.877	0.069	13.39	0

Similarly, this assessment was carried out for third-order formative components of OI traits. the latent variable's scores for the second order components of OI traits were used to create and estimate the model at this stage. The path model for this assessment is illustrated in Figure 3.5. The assessment outcome is presented in Table 3.24.

**Figure 3.5**

Formative Higher Order Component Model Comprising Third Order Construct (OI Traits)



**Table 3.24**

*Summary of Findings from Formative Higher Order Component Assessment*

Assessment	Outcome	Actions Taken
Convergent Validity	This analysis will be carried out during the actual study with the inclusion of global single item.	None
Indicator Collinearity	The analysis showed that both formative indicators under OI Traits construct had VIF value below 5.0, indicating no collinearity issues between the third order components. (Table 3.25)	None
Statistical significance of indicator weights	Basic bootstrapping (5000 subsamples, BCa Bootstrap Confidence Interval, two-tailed test at 0.05 significance level) was used (Hair et al., 2017; Ramayah et al. 2018). Based on the p-values (Table 3.26), both higher order components under OI Traits had significant P-Values < 0.05. The same result was indicated for components under Occupational Stress and Digital Service Quality constructs.	All these indicators were retained. No further assessment for outer loading and T-values were reported for problematic construct under the mediating and dependent variables, as they demonstrated similar results as in Table 4.7 above.
statistical relevance of the indicator weights	The indicators weight range between -0.129 and 1.018, where all fell between -1 and +1 indicating normal result without collinearity or sample size issues (Hair et al., 2018). Some indicators values indicate weak relationship (close to 0) while some demonstrate strong relationship with the construct (weight close to 1) (Table 3.26).	All the indicators were retained.

**Table 3.25***Outer VIF values for the higher-order component (Third Order Component)*

	VIF
Employees Oriented OI Traits	2.267
Organisation Oriented OI Traits	2.267
Transparency	2.303
Users Support	3.727
Efficiency	4.329
Reliability	4.97
Assurance and Trust	5.004
Anxiety	6.812
Time Stress	6.812

**Table 3.26***P-values for the Higher-Order Components Outer Weight*

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
Employees Oriented OI Traits -> OI Traits	0.549	0.551	0.226	2.432	0.015
Organisation Oriented OI Traits -> OI Traits	0.520	0.505	0.225	2.318	0.021
Users Support -> Dig Gov Service Quality	1.018	0.949	0.304	3.346	0.001
Transparency -> Dig Gov Service Quality	-0.486	-0.481	0.225	2.155	0.031
Efficiency -> Dig Gov Service Quality	0.462	0.463	0.341	1.353	0.176
Anxiety -> Occupational Stress	0.537	0.510	0.525	1.024	0.306
Time Stress -> Occupational Stress	0.483	0.489	0.526	0.918	0.358
Assurance and Trust -> Dig Gov Service Quality	-0.129	-0.141	0.354	0.364	0.716
Reliability -> Dig Gov Service Quality	0.007	0.042	0.426	0.017	0.987

**e) Post Pilot Study: Revision on the Instrument**

In addition to the statistical finding, few recommendations were also received from the participants who took part in the study. This include the suggestions to relook at the length of the survey, simplify some of the wordings, predetermine the digital service to be assessed and

incorporate stakeholder engagement element into the survey items, which was also raised during the content validity stage. Based on the feedback from the respondents and statistical outcome, the research instrument is revised as follows:

- a) Discarding three items (T4, KD4, SF3), reassigning one item (ALC6) to knowledge deployment dimension in accordance with the statistical requirement and content validity assessment.
- b) simplifying some of the wordings in the items that could lead to ambiguity.
- c) incorporating the stakeholder engagement element into the ‘Strategic Vision and Decision Making’ dimension under OI Trait construct to reflect the importance of participatory decision making in the public sector (UN, 2020). This is done by incorporating existing items (SV2 and SV5) with some elements such as of participatory approaches and engagement activities from E-Participation Index (UN, 2020):

SV2:

‘...ongoing strategic discussion at all levels on the organisation’s internal and external environment to meet the current challenges’, was changed to ‘ongoing strategic discussions with stakeholders to the meet current challenges on public service delivery.

SV5:

‘...availability of meaningful and convincing vision, mission, or principles for guiding the organisation in making key decisions’ was changed to ‘availability of convincing vision, mission, or principles (that is based on consultation with stakeholders etc) for guiding the organisation in making key decisions.

- d) pre-determining the digital system to be assessed to avoid wrong system evaluation, e.g other organisation’s system, internal system etc.
- e) assigning global single item to each formative construct for actual data analysis (Hair et al., 2017).
- f) incorporating marker variable to address the common method bias issues (Lindell and Whitney, 2003; Lin, Huang, and Hsu, 2015).

The number of items by construct is illustrated in Table 3.27 and the revised instrument is presented in Table 3.28.

**Table 3.27**

*Summary of items distribution of revised instrument*

<b>Construct/ Dimensions</b>	<b>No. of Original Items (pilot study)</b>	<b>Revised Items for Actual Study</b>
<b>Organisational Intelligence Traits</b>		
Leadership	7	7
Alignment and Congruence	6	5
Shared Fate	5	4
Heart	4	4
Strategic Vision and Decision Making	5	5
Appetite for Change	4	4
Knowledge Deployment	4	4
Performance Pressure	4	4
	<b>39</b>	<b>37</b>
<b>Occupational Stress</b>		
Time Stress	8	8
Anxiety	5	5
	<b>13</b>	<b>13</b>
<b>Dig Gov Service Quality</b>		
Assurance and Trust	3	3
Transparency	4	3
Reliability	5	5
Users Support	4	4
Efficiency	5	5
	<b>21</b>	<b>20</b>
Total no. of items	<b>73</b>	<b>70</b>

**Table 3.28**

*Summary of items for the revised instrument*

Code	PART I: DIGITAL GOVERNMENT SERVICE QUALITY	Code	
	<b>Continuous assessment</b> is performed on the following quality aspects of our organisation's digital service, so that it...		
	<b>Efficiency</b>		<b>Reliability</b>
EF1	has clear and easy to navigate structure.	R1	provides accessibility whenever users need it.
EF2	has search engine or tool that is effective.	R2	works properly with any type of web browser.
EF3	has well organised site map.	R3	performs the service successfully upon first request.
EF4	is well tailored to individual users' needs such as customised search functions by keywords, agencies etc.	R4	enables pages to load in reasonable time.
EF5	provides sufficiently detailed information including on completing transaction.	R5	enables fast download of the forms and other documents.
	<b>Assurance and Trust</b>		<b>Transparency</b>
AT1	demonstrates performance that can promote confidence among the users.	T1	provides information on the latest approved service standards and policies.
AT2	requests only necessary users' personal data for authentication purpose.	T2	provides latest open government datasets for public access via platform such as data.gov.my etc.
AT3	ensures safety of users' data obtained while interacting with the system (e.g data is archived securely; data is only used for the reasons submitted etc).	T3	discloses periodical activity reports pertaining to service performance and customers' satisfaction.
	<b>Constant monitoring</b> of our digital service quality is performed as follows:		
	<b>User Support</b>		
US1	the employees show sincere interests in solving users' problem.	US3	the employees have the knowledge to answer users' questions.



US2	users receive quick replies for any inquiries or complaints.	US4	the employees have the ability to convey trust and confidence to the service users.
GS1	<i>Overall, our digital service quality is sustained via good internal process support.</i>		
<b>Code</b>	<b>PART II: ORGANISATIONAL INTELLIGENCE TRAITS</b>	<b>Code</b>	
	<b>Leadership</b>		
	<u>Top management</u> of my current organisation...		<u>Managers at all level</u> of my current organisation...
LD1	share organisation's plans, priorities, and operating results with the employees.	LD4	demonstrates values such as commitment, enthusiasm, energy and optimism in carrying out their work.
LD2	promote openness to change, i.e doing things in new ways.	LD5	constantly communicate clear performance targets and expectations to the employees.
LD3	promotes ethics and integrity within organisation.	LD6	shows appreciation for knowledge, skills and education of employees as key resources.
		LD7	act quickly or decisively to solve unproductive employee's issues.
	Generally, <u>employees at all levels</u> of my current organisation...		
	<b>Shared Fate</b>		<b>Heart</b>
SF1	understand the overall strategic concept of the organisation.	H1	express a sense of pride in belonging to the organisation.
SF2	express sense of belonging with the organisation.	H2	are willing to put in extra effort to help the organisation in achieving its goals.
SF3	help and support one another in getting work done, despite from different departments.	H3	express optimism regarding their career growth with the organisation.
SF4	believe in the organisation's prospects for success, as to how it fulfils the stakeholders' and citizens' expectation.	H4	believe that management has their best interests at heart.
	<b>Performance Pressure</b>		
PP1	understand clearly their roles, responsibilities and expected contributions.	PP3	believe their rewards and career successes are determined by their job performance.

PP2	feel their work contributes to the success of the organisation.	PP4	receive feedback about their performance, such as recognition of their contributions etc.
	My current organisation <b><u>carries out these activities:</u></b>		
	<b>Strategic Vision</b>		<b>Knowledge Deployment</b>
SV1	effective process for developing its strategic thinkers in the organisational.	KD1	maintain organisational boundaries that allow employees to share ideas and information.
SV2	ongoing strategic discussions with stakeholders to meet current challenges on public service delivery issues.	KD2	initiation of programs to support continuous learning and career development for all employees.
SV3	systematic process for environmental scanning, e.g identifying key trends, threats, and opportunities of the organisation.	KD3	inculcate the culture of sharing knowledge and important organisation's information.
SV4	annual strategic review, involving leaders at all levels to reconsider the organisation's environment, direction, and strategies.	KD4	availability of information systems or tools that support the employees in doing their jobs effectively, i.e free flow of useful information.
	My current organisation <b><u>exhibits these traits:</u></b>		
SV5	availability of convincing vision, mission, or principles (based on consultation with stakeholders etc) to guide the organisation in making key decisions.		
	<b>Alignment and Congruence</b>		<b>Appetite for Change</b>
ALC1	availability of policies and regulations which are in line with organisation's core priorities.	AC1	encouragement of innovation by experimenting new ideas or better ways to do their jobs.
ALC2	overall structure of the organisation which is appropriate to its core business.	AC2	are allowed to question the accepted way of doing things.
ALC3	availability of organisational missions that are aligned to facilitate coordination between units.	AC3	bureaucratic obstructions such as rules for the sake of rules, outdated policies and procedures are kept to a minimum.
ALC4	authority and responsibility that are delegated to multiple level of the organisation.	AC4	evolving service delivery that keeps up with the changing demands of the organisation's environment.

ALC5	availability of work procedures that facilitate employee's performance rather than delaying it.	GS2	<i>Generally, I believe that my organisation demonstrates good organisational intelligence practices.</i>
<b>Code</b>	<b>PART II: OCCUPATIONAL STRESS</b>	<b>Code</b>	
	These statements below describe <b><u>the feeling about my current job:</u></b>		
	<b>Time Stress</b>		<b>Anxiety</b>
TS1	Working here makes it hard to spend enough time with my family.	ANX1	I have felt fidgety or nervous as a result of my job.
TS2	I am not able to see my work from a bigger perspective, for I spend too much time at work.	ANX2	My job bothers me more than it should.
TS3	Working here leaves little time for other activities.	ANX3	There are lots of times when my job drives me right up the wall.
TS4	I frequently get the feeling I am married to the organisation.	ANX4	Sometimes when I think about my job, I get a tight feeling in my chest.
TS5	I have too much work and too little time to do it.	ANX5	I feel guilty when I take time off from job.
TS6	I sometimes worry about the phone calls or messages received at home as they might be job-related.	GS3	<i>Overall, I feel stressed out as a result of my current job.</i>
TS7	I feel like I never have a day off.		
TS8	Too many employees at my level in the current organisation get burned out by job demands.		
	<b>Cognitive Rigidity Scale (Marker Variable)</b>		
MV1	Once I have come to a conclusion, I'm not likely to change my mind.		
MV2	I don't change my mind easily.		
MV3	My views are very consistent over time.		

### **3.3.2 Qualitative Instrument**

#### **3.3.2.1 Semi structured Interview Questions**

Specifically, the semi-structured interview was used to elicit relevant information from the respondents. As such, the interview protocol consisted of few predetermined questions, whilst giving the flexibility for the interviewer to probe if necessary (Lingard and Kennedy, 2010). The interview varied based on the interviewees' expertise. All questions are open ended questions. The respondents were provided with the consent form, research background and analysis outcome of the project prior to the actual interview. The interview was conducted in both English and Malay language utilising online and offline platform, depending on the experts' preference. The interview questions can be obtained in Appendix 8.

#### **3.3.2.2 Open-Ended Survey Questions**

The open-ended were included at the end of the survey form and are optional fields. These questions are aimed at giving opportunities to the participants to explain on the aspects that requires improvement in sustaining the service quality whilst ensuring the psychological well-being of the service providers. Specifically, two main open-ended questions were included as follows:

- a) Which aspects need to be improved the most to heighten or sustain your organisation's digital government service quality?  
State the reasons for your suggestions.
  
- b) Based on your experience, which organisational aspects need to be improved the most to ensure the employees' psychological well-being in your organisation?  
State the reasons for your suggestions.

The validation of this questions was done together with the quantitative survey instrument as they are embedded in the same instrument. Some modification was made in terms of wording based on the input obtained during pre-testing and pilot testing.

### **3.3.2.3 Data Analysis Approach**

Qualitative data analysis often begins with data reduction, data display, drawing and verifying conclusions (Sekaran and Bougie, 2010). As data reduction consists of selecting, coding and categorising, the data was first examined and selected accordingly. Next, coding was initiated by arranging the data in a systematic order so it can be grouped, linked and consolidated into categories (Saldana, 2015). These codes were later grouped based on the patterns and relationships among the data. Since the grouping of codes must be done based on careful review of previous research or theory (Boyatzis, 1998), the initial codes were created based on the eight OI traits as proposed in the research model to ensure consistencies to aid the justifications of the quantitative findings. At the same time, additional code namely ‘Psychological Well-being’ was included based on the data obtained. This study essentially used NVivo 12 software to create the coding, assign references to the respective codes and finally to generate the Tree-Map chart. The Tree-Map chart compares the number of references assigned to each code which is helpful in making statistical comparisons.

As for the qualitative data obtained from the interview and written feedback, no formal content analysis tool was used. Principally, the focus of engagement session with the experts is to gather rich insight to support quantitative data findings as well as to recommend possible area of improvement for the Malaysian public sector (Perry, 1998).

## **3.4 Ethical Consideration**

As this study involves human participants, research ethics approval is required. The application to conduct pilot study, actual study and interview with experts were submitted to the Nottingham University Business School Research Ethics Committee (NUBS-REC). It was made clear during the submission that all information obtained from the respondents will remain anonymous and treated in the strictest confidence. Besides, all information derived from this survey will be used for research purposes only. The approval from NUBS-REC (Appendix 3) was obtained on 22<sup>nd</sup> February 2021 (Pilot and actual study) and 11 February 2022 (Expert Insights).

### **3.5 Conclusion**

This chapter firstly discussed the philosophical approach that focussed on positivism and interpretivism due to the nature and design of the study. Next, it also discusses the methodological approach of the study which caters both quantitative and qualitative research method. This study proposed cross-sectional study setting and targeted the service providers at the federal agencies. Essentially, multistage cluster sampling was employed for sampling after taking into consideration the need for generalisation and type of available data. In order to ensure the sample size is adequate for generalisation, this study utilised 10-times rule, power analysis (G\*Power) and item to respondent ratio. Hence, this study initially targeted at least 350 sample size to meet the minimal statistical analysis requirement from four clusters. As for the experts' insights, this study adopted purposive sampling and targets about 10 to 15 experts, or rather until saturation point is met.

Following this, the chapter deliberated on instrument development process for both quantitative and qualitative instrument. Generally, the survey instrument for quantitative and qualitative data consisted of seven steps, starting from conceptualisation of construct, followed by generation of construct items, initial validation of the items, pre-test of the instrument, pilot test and finally the actual field study. The model was specified as a higher order model with reflective formative constructs. From the initial pool of 88 items, the number was brought down to 73 after expert reviews and pretesting stages. The pilot study was carried out involving 10 agencies and 133 respondents. The measurement model was then tested by using PLS-SEM approach to examine its reliability and validity. Some enhancements were made based on the feedback obtained and the number of items were further reduced to 70 items.

The qualitative instrument comprises two main open-ended questions which are included in the survey form for quantitative data. On the other hand, the interview questions are customised based on their field of expertise. The revised instrument was employed for actual study for testing of research hypotheses, interpreting the findings and eventually drawing conclusions along with relevant strategies for the Malaysian public sector.

## CHAPTER 4: QUANTITATIVE DATA ANALYSIS

This chapter discusses the analysis process and outcome of quantitative data obtained from 394 service providers at Malaysian federal agencies level. It begins with a descriptive statistic on demographic profile and data distribution using Web Power and SPSS 16.0. Following this, it discusses the outcome of the validity and reliability assessment of the proposed instrument. Hence, the three most salient steps in the multi-stage process of structural equation modeling approach using and SmartPLS 3.0 (v.3.3.6) are discussed: (1) model specification; (2) outer model or measurement model evaluation; and (3) inner or structural model evaluation. Next, the outcome of the proposed hypotheses assessment is deliberated. Finally, this chapter discusses the IPMA analysis outcome, as to how it can be employed to gain additional insights and to extend the findings obtained from the hypotheses testing.

### 4.1 Data Screening

A total of 421 completed surveys were received via the online platform (Qualtric) from 30 agencies represented by four clusters: Security, Economy, Social and Infrastructure (Table 4.1). After preliminary screening, 27 survey forms were discarded due to straight-lining responses and unsuitable respondents. Hence, a total of 394 completed surveys were used for the analysis purpose. This number is deemed sufficient as it meets the minimum sample size requirement (109 samples) for PLS-SEM analysis, that was determined by power analysis (G\*Power) in Chapter 3.

**Table 4.1***Total Number of Agencies, Digital Services and Responses by Clusters*

No.	Cluster	No. of Agencies	No. of Digital Services (G2C and G2B)	No. of Recorded Responses
1.	Infrastructure	7	37	81
2.	Security	8	31	133
3.	Economy	10	58	99
4.	Social	5	17	81
		<b>30</b>	<b>143</b>	<b>394</b>

## 4.2 Descriptive Analysis

### 4.2.1 Respondents Demographic Profile

The respondents' background was examined in terms of their gender and service scheme to obtain better perspective of the digital service providers involved in the study. Based on the 394 complete responses obtained, 200 (50.8%) were males while 194 (49.2%) were females (Table 4.2). In terms of service scheme (Table 4.3), the respondents from IT and Administrative & Diplomatic service scheme constituted equal proportion of 68 (17.3%) each. Other service schemes that make up the rest of the sample are Education and Training (9.14%), Science and Engineering (6.35%), Economy and Finance (5.33%) and Others (3.30%). Essentially, the personnel from technical scheme were the ones who provide technical support whereas the administrative and other schemes were the ones handling business process pertaining the digital services.



**Table 4.2***Respondents' Profile by Gender*

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Gender	Female	194	49.2	49.2	49.2
	Male	200	50.8	50.8	100.0
	Total	394	100.0	100.0	

**Table 4.3***Respondents' Profile by Service Scheme*

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Service Scheme	Administrative	133	33.75	33.75	33.75
	Security and Defence	93	23.60	23.60	57.35
	Information Technology	73	18.53	18.53	75.88
	Education and Training	36	9.14	9.14	85.02
	Science and Engineering	25	6.35	6.35	91.37
	Economy and Finance	21	5.33	5.33	96.70
	Others	13	3.30	3.30	100.00
	<b>Total</b>	<b>394</b>	<b>100.0</b>	<b>100.0</b>	<b>100.00</b>

#### 4.2.2 Data Distribution

The values for data dispersion (minimum, maximum and standard deviation) and central tendency (mode, median and mean) were obtained for each dimension of the respective construct (Table 4.4). Generally, the minimum values recorded for all constructs were between 1 and 2, whereas all constructs had maximum values of 7. The mean demonstrated values within the range of 3.31 to 5.48, whereas standard deviation was between 1.03 to 1.40, signifying that most of the data were

close and less spread out from the mean. The values of mean were lower than the median and mode, indicating left skewed data. Despite less emphasis being stressed on data distribution in PLS-SEM, the nature of the data distribution was still examined for univariate and multivariate normality in the following section.

**Table 4.4**

*Dispersion, Central Tendency and Shapiro-Wilk Test of Normality*

	Dispersion			Central Tendency			Shapiro-Wilk	
	Minimum	Maximum	Std. Deviation	Mean	Median	Mode	Statistic	Sig.
Leadership	1.00	7.00	1.13086	5.0544	5.2857	6.00	0.965	0.000
Shared.Fate	1.00	7.00	1.06609	5.1840	5.2500	6.00	0.957	0.000
Heart	1.00	7.00	1.08108	5.0863	5.2500	5.00	0.964	0.000
Appetite.for. Change	1.00	7.00	1.06641	4.9543	5.0000	5.00	0.966	0.000
Performance. Pressure	1.00	7.00	1.09971	5.1650	5.2500	6.00	0.952	0.000
Knowledge. Deployment	1.00	7.00	1.05418	5.1523	5.2500	6.00	0.955	0.000
Alignment. Congruence	1.00	7.00	1.09160	5.2665	5.4000	6.00	0.951	0.000
SharedVision and DecMaking	1.00	7.00	1.13771	5.0888	5.2000	6.00	0.956	0.000
Anxiety	1.00	7.00	1.39786	3.3061	3.2000	4.00	0.969	0.000
Time.Stress	1.00	7.00	1.42411	3.3614	3.2500	4.00	0.968	0.000
Reliability	1.40	7.00	1.04076	5.4218	5.6000	6.00	0.958	0.000
Efficiency	2.00	7.00	1.03407	5.3162	5.4000	6.00	0.968	0.000
Assurance. Trust	2.00	7.00	1.08147	5.4535	5.6667	6.00	0.948	0.000
User.Support	1.00	7.00	1.09479	5.4848	5.7500	6.00	0.939	0.000
Transparency	1.00	7.00	1.28816	5.0440	5.0000	6.00	0.952	0.000

#### 4.2.2.1 Univariate Normality

Univariate normality for each of the components were examined by using Shapiro-Wilk test (IBM SPSS 26.0) along with skewness and kurtosis (Webpower) as recommended by Sarstedt and Mooi (2019) and Hair et al. (2017). The results in Table 4.4 showed that the p-values of the Shapiro-Wilk test for all the dimensions are smaller than 0.05, indicating that the data deviates from a

normal distribution. (Sarstedt and Mooi, 2019). However, Hair et al. (2017) argued that this test only indicates whether or not the null hypothesis of normally distributed data should be rejected. Hence, skewness and kurtosis measures were recommended to decide on the normality of the data distribution. Based on the values of univariate skewness and kurtosis obtained via Statistical Power Analysis using Webpower (Table 4.5), the skewness value for all the dimensions is between  $\pm 1$  while the kurtosis value is between  $\pm 7$  (Kline, 2016), indicating that the data were normally distributed (Hair et al., 2017). Almost all dimensions demonstrated a negative skewness value and positive kurtosis value, which signifies most of the scores are above the mean, with heavier tails and a higher peak (Kline, 2016).

**Table 4.5**

*Univariate and Multivariate Skewness and Kurtosis*

Sample size: 394						
No. of variables: 15						
<b>Univariate skewness and kurtosis</b>						
	Skewness	SE_skew	Z_Skew	Kurtosis	SE_Kurt	Z_Kurt
Leadership_	- 0.661	0.123	-5.378	0.212	0.245	0.864
Shared Fate_	-0.752	0.123	-6.120	0.479	0.245	1.934
Heart	-0.629	0.123	-5.116	0.142	0.245	0.580
Appetite for Change	-0.691	0.123	-5.621	0.750	0.245	3.057
Performance Pressure	-0.836	0.123	-6.804	0.964	0.245	3.929
Knowledge Deployment	-0.832	0.123	-6.768	1.091	0.245	4.449
Alignment and Congruence	-0.885	0.123	-6.957	0.934	0.245	3.808
Strategic vision	-0.798	0.123	-6.494	0.651	0.245	2.656
Anxiety	0.280	0.123	2.277	-0.785	0.245	-3.200
Time Stress	0.332	0.123	2.702	-0.774	0.245	-3.154
Reliability	-0.700	0.123	-5.696	0.413	0.245	1.686
Efficiency	-0.555	0.123	-4.514	-0.074	0.245	-0.300
Assurance and Trust	-0.678	0.123	-5.511	0.157	0.245	0.641
Users Support	-0.831	0.123	-6.756	0.476	0.245	1.941
Transparency	-0.690	0.123	-5.616	0.322	0.245	1.315
<b>Mardia's multivariate skewness and kurtosis</b>						
	B	Z	p-value			
Skewness	37.05538	2433.3033	0			
Kurtosis	350.80862	42.10538	0			

#### **4.2.2.2 Multivariate Normality**

Unlike univariate normality measures, multivariate skewness and kurtosis compare the joint distribution of several variables against a multivariate normal distribution (Cain et al., 2017). Mardia's multivariate skewness and kurtosis result were examined for the study, as suggested by Hair et al. (2017) and Cain et al. (2017). Based on the outcome in Table 4.5, the data was not multivariate normal, as demonstrated by the skewness ( $\beta = 37.05538$ ,  $p < 0.01$ ) and kurtosis ( $\beta = 350.80862$ ,  $p < 0.01$ ). This exceeds the threshold value of  $\pm 3$  for multivariate skewness and  $\pm 20$  multivariate for kurtosis (Cain et al., 2017). This is in accordance with Hair et al. (2018) who asserted that univariate normality does not often assure multivariate normality. Since the normal distribution assumption of the data was violated, the use of non-parametric analysis tool (SmartPLS) is justified for this study.

### **4.3 Model Specification**

This study employed a disjoint two-stage approach to assess the proposed model which consists of two reflective-formative constructs and a reflective-formative-formative construct, as discussed in Chapter 3. Specifically, the measurement model assessment consisted of two stages, to evaluate the lower-order and higher-order components of the construct respectively. Next, the structural model was specified by only considering the higher-order components.

### **4.4 Assessment of the Measurement Model**

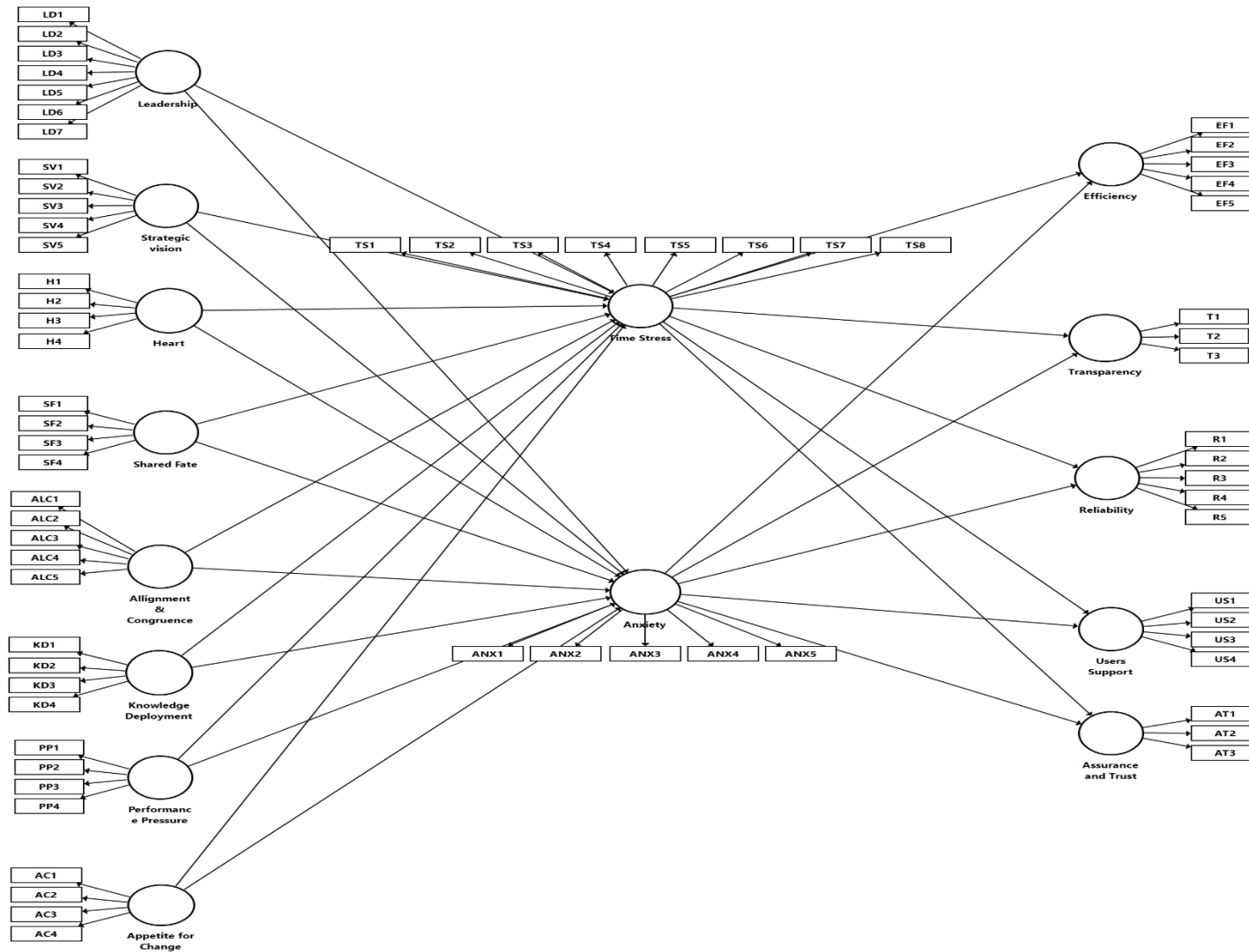
As this study utilised a disjoint two-stage approach, the lower order component and higher order component were assessed with mode A (reflective model) and mode B (formative model) respectively (Becker et al., 2012).

#### **4.4.1 Stage 1: Assessment of Reflective Lower Order Components**

The reflective lower order components were tested with SmartPLS 3.0 (v.3.3.6), for its' outer loading, internal consistency, convergent validity and discriminant validity. The lower order components of this model are illustrated in Figure 4.1 below.

**Figure 4.1**

Lower order components of the measurement model



#### 4.4.1.1 Indicator's Outer Loading

Based on the indicators' outer loading values (Table 4.6), all the indicators had values of more than 0.708 indicating desirable reliability (Hair et al., 2018). However, one indicator (ANX5) under Occupational Stress component had values of 0.636, which was still within the range of 0.40 to 0.70. Thus, composite reliability and average variance extracted values were further examined before deleting the item.

**Table 4.6**

*Reflective Indicators' Outer Loading*

OI Traits		Dig Gov Service Quality		Occupational Stress	
Indicator	Loading	Indicator	Loading	Indicator	Loading
AC1	0.792	AT1	0.892	ANX1	0.777
AC2	0.824	AT2	0.881	ANX2	0.882
AC3	0.730	AT3	0.891	ANX3	0.850
AC4	0.872	EF1	0.888	ANX4	0.848
ALC1	0.885	EF2	0.850	ANX5	0.636
ALC2	0.883	EF3	0.872	TS1	0.776
ALC3	0.896	EF4	0.875	TS2	0.805
ALC4	0.889	EF5	0.794	TS3	0.841
ALC5	0.890	R1	0.848	TS4	0.821
H1	0.872	R2	0.848	TS5	0.853
H2	0.874	R3	0.882	TS6	0.762
H3	0.879	R4	0.899	TS7	0.843
H4	0.836	R5	0.797	TS8	0.864
KD1	0.839	T1	0.862		
KD2	0.837	T2	0.910		
KD3	0.741	T3	0.900		
KD4	0.852	US1	0.911		
LD1	0.765	US2	0.902		
LD2	0.817	US3	0.888		
LD3	0.794	US4	0.912		
LD4	0.842				
LD5	0.867				
LD6	0.833				
LD7	0.770				
PP1	0.847				
PP2	0.862				
PP3	0.849				

PP4	0.863
SF1	0.840
SF2	0.847
SF3	0.888
SF4	0.865
SV1	0.894
SV2	0.880
SV3	0.891
SV4	0.877
SV5	0.861

#### 4.4.1.2 Internal Consistency Reliability

To examine the internal consistency reliability, both Cronbach’s alpha and composite reliability were observed as they represent the lower and the upper bound of reliability value respectively (Hair et al., 2017). Based on the values from the analysis, both Cronbach’s alpha and composite reliability in Table 4.7, all components demonstrated high reliability with values above 0.7 (Hair et al., 2017; Hair et al., 2018).

**Table 4.7**

*Composite Reliability and Average Variance Extracted of the Lower-Order Components*

	<b>Cronbach's Alpha</b>	<b>Composite Reliability</b>	<b>Average Variance Extracted (AVE)</b>
Alignment and Congruence	0.934	0.949	0.790
Anxiety	0.862	0.900	0.645
Appetite for Change	0.820	0.881	0.650
Assurance and Trust	0.866	0.918	0.789
Efficiency	0.910	0.932	0.734
Heart	0.888	0.923	0.749
Knowledge Deployment	0.837	0.890	0.670
Leadership	0.915	0.932	0.661
Performance Pressure	0.878	0.916	0.731
Reliability	0.909	0.932	0.732
Shared Fate	0.883	0.919	0.740
Strategic Vision and Decision Making	0.928	0.945	0.775
Time Stress	0.931	0.943	0.675
Transparency	0.870	0.921	0.794
Users Support	0.925	0.947	0.816

#### 4.4.1.3 Convergent Validity

Average variance extracted (AVE) values for all components are higher than 0.5 including the Anxiety component (Table 4.7). Hence, item ANX5 with low outer loading was retained, as both composite reliability and the average variance extracted for the Anxiety component met the required cut-off value.

#### 4.4.1.4 Discriminant Validity

Discriminant validity was examined by assessing the heterotrait-monotrait (HTMT) ratio of the correlation analysis outcome (Henseler et al., 2015; Hair et al., 2018). Based on the HTMT analysis, almost all the components of the three constructs demonstrated HTMT values above 0.90 for some combinations, which indicated that the components were not distinct from one another (Hair et al., 2018). Following this, the discriminant validity was further examined by assessing the  $HTMT_{inference}$  values (bootstrapping with 1000 subsamples at 0.1 sig. level), as suggested by Henseler et al. (2015). The outcome is presented in Table 4.8 below.

**Table 4.8**

*Excerpt of  $HTMT_{inference}$  Values (Confidence Intervals Bias Corrected).*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Bias</b>	<b>5.00%</b>	<b>95.00%</b>
Knowledge Deployment -> Appetite for Change	1.041	1.040	0.000	1.011	1.074
Strategic vision -> Knowledge Deployment	0.987	0.987	0.000	0.967	1.006
Shared Fate_ -> Heart	0.982	0.982	0.000	0.960	1.005
Time Stress -> Anxiety	0.987	0.987	0.000	0.964	1.005
Knowledge Deployment -> Alignment and Congruence	0.986	0.987	0.001	0.964	1.001
Shared Fate_ -> Knowledge Deployment	0.973	0.973	0.000	0.943	0.999
Performance Pressure -> Appetite for Change	0.948	0.949	0.000	0.904	0.994
Strategic vision -> Appetite for Change	0.965	0.964	-0.001	0.933	0.990
Efficiency -> Assurance and Trust	0.960	0.961	0.001	0.922	0.988
Performance Pressure -> Knowledge Deployment	0.949	0.951	0.002	0.894	0.987
Performance Pressure -> Heart	0.950	0.950	0.000	0.913	0.979
Reliability -> Assurance and Trust	0.941	0.942	0.000	0.906	0.964



Knowledge Deployment -> Heart	0.925	0.925	0.000	0.873	0.964
Reliability -> Efficiency	0.924	0.924	0.001	0.859	0.964
Shared Fate_ -> Performance Pressure	0.937	0.938	0.001	0.900	0.963
Strategic vision -> Alignment and Congruence	0.933	0.933	0.000	0.905	0.952
Appetite for Change -> Alignment and Congruence	0.924	0.924	0.000	0.891	0.95

Table 4.8 signified that all the components' lower and upper confidence intervals did not include the value of 1.0 except for five combinations under the OI Traits and Occupational Stress components, signifying discriminant validity issues (Henseler et al., 2015; Hair et al., 2017). As such, items with low correlations with other items measuring the same component were examined to increase the problematic construct's average monotrait-heteromethod correlations (Henseler et al., 2015). At the same time, items correlation with the ones in the opposing construct and their cross-loadings (Appendix 6) were also assessed to decrease the average heteromethod-heterotrait of the constructs (Henseler et al., 2015). The actions taken to resolve the discriminant validity issues is summarised in Table 4.9.

**Table 4.9**

*Summary of Remedies to Rectify Discriminant Validity Issues of the Lower Order Components*

<b>Problematic Lower Order Components</b>	<b>Item Correlations</b>		<b>Cross Loading</b>	<b>Remedies</b>	<b>Justification</b>
	<b>within items of the same component</b>	<b>within items of other components</b>			
Anxiety	All items (ANX1-ANX5) were either moderately or strongly correlated to one another except ANX5.	None exhibited strong correlation with other items.	All items had the highest loadings on its respective component than other components.	ANX5 was deleted.	ANX5 was deleted after considering its content validity, low outer loading and inter item correlation within Anxiety component.

Time Stress	All items were strongly related to one another.	None had strong correlation with other components.	None	All items were retained after examining the relevance to the respective component.
Appetite for Change	All items (AC1-AC4) were not strongly correlated to one another.	Stronger correlations were observed with few items under Strategic Vision, Knowledge Deployment and Heart components.	AC2 was deleted	AC2 was deleted after examining its content validity, inter and intra item correlation.
Shared Fate	All items were either moderately or strongly related to one another.	None demonstrated strong correlations with other items.	None	All items were retained after examining the relevance to the respective component.
Knowledge Deployment	All items were not strongly correlated to one another except KD1 and KD4.	All items had higher correlations with most of the items under Alignment and Congruence. KD1 was strongly correlated with SF3 and SF4.	KD3 was deleted and KD1 was reassigned to Shared Fate component.	Deletion of KD3 and reassigning of KD1 were done after considering content validity and correlations with items of other components. KD2 and KD4 were assigned under Appetite for Change component since the number of items were insufficient to represent a component.
Alignment and Congruence	All items (ALC1-ALC5) were either moderately or strongly related to one another.	All ALC items were highly correlated with SV5.	ALC1 was deleted	The deletion of ALC1 was done after examining its content validity and high correlation with SV5.

Heart	All items were either moderately or strongly correlated to one another.	None had higher correlation with other components' indicators, except H4 and AC1.	None	All items were retained after examining the relevance to the respective component.
Strategic Vision and Decision Making	All items (SV1-SV4) were either moderately or strongly correlated to one another except SV5.	Most items had strong correlation with AC2. SV5 was strongly correlated with ALC1.	SV5 was reassigned to ALC.	SV5 was highly correlated with ALC1 and was well represented under ALC component.

*Note: Cut-off point for moderate to high correlation value: 0.50 (Hair et al., 2018)*

Following the assessment of the lower order components' discriminant validity, four items were deleted and another four were reassigned to other components. The number of deleted items was far below the maximum number allowed, which is 20% of the total number of original items (20% x 70 = 14 items) as asserted by Hair et al. (2010) and Hair et al., (2017). The revision of the items had also led to the merging between 'Knowledge Deployment' and 'Appetite for Change', which was named as 'Appetite for Change and Knowledge Deployment'. This option was considered as the remaining indicators under the 'Knowledge Deployment' component were insufficient to represent a component. Besides, this was also in accordance with the outcome of content validity review (Henseler et al., 2015; Ramayah et al., 2018). Hence, combining conceptually similar components was seen as a better option than just deleting and losing vital information about the construct (Henseler et al., 2015). Even though these components were conceptually different to the researcher, respondent might have a different mental representation of the two components, or as part of the same broader component (Kock and Lynn, 2012). After all, free flow of knowledge is a vital cultural essence to drive change and challenge the status quo in the organisation (Albrecht, 2003). Based on the revision made on the model, the HTMT<sub>inference</sub> values (5000 subsamples, 0.05 sig level) for all the lower order components were reduced and met the requirement of discriminant validity (Table 4.10). The full analysis outcome is presented in Appendix 7

**Table 4.10***Excerpt of HTMT<sub>inference</sub> Values (Confidence Intervals Bias Corrected) Following the Revision*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Bias</b>	<b>5.00%</b>	<b>95.00%</b>
Time Stress -> Anxiety	0.972	0.973	0.001	0.942	0.994
Efficiency -> Assurance and Trust	0.960	0.960	0.000	0.923	0.990
Shared Fate -> Heart	0.960	0.960	0.000	0.931	0.981
Performance Pressure -> Heart	0.950	0.949	0.001	0.917	0.980
Performance Pressure -> Appetite for Change and Knowledge Deployment	0.939	0.94	0.001	0.882	0.976
Appetite for Change and Knowledge Deployment -> Alignment and Congruence	0.943	0.943	0.000	0.912	0.970
Reliability -> Assurance and Trust	0.941	0.941	0.000	0.903	0.963
Reliability -> Efficiency	0.924	0.923	0.001	0.855	0.962
Shared Fate -> Performance Pressure	0.929	0.928	0.001	0.894	0.958
Strategic vision -> Appetite for Change and Knowledge Deployment	0.929	0.93	0.000	0.897	0.954
Shared Fate -> Appetite for Change and Knowledge Deployment	0.905	0.905	0.000	0.872	0.938
Heart -> Appetite for Change and Knowledge Deployment	0.891	0.891	0.000	0.845	0.938
Leadership_ -> Appetite for Change and Knowledge Deployment	0.847	0.849	0.002	0.765	0.907
Strategic vision -> Performance Pressure	0.881	0.880	0.001	0.837	0.925
Strategic vision -> Alignment and Congruence	0.879	0.879	0.000	0.831	0.909

**4.4.2 Stage 2: Assessment of Formative Higher Order Components.**

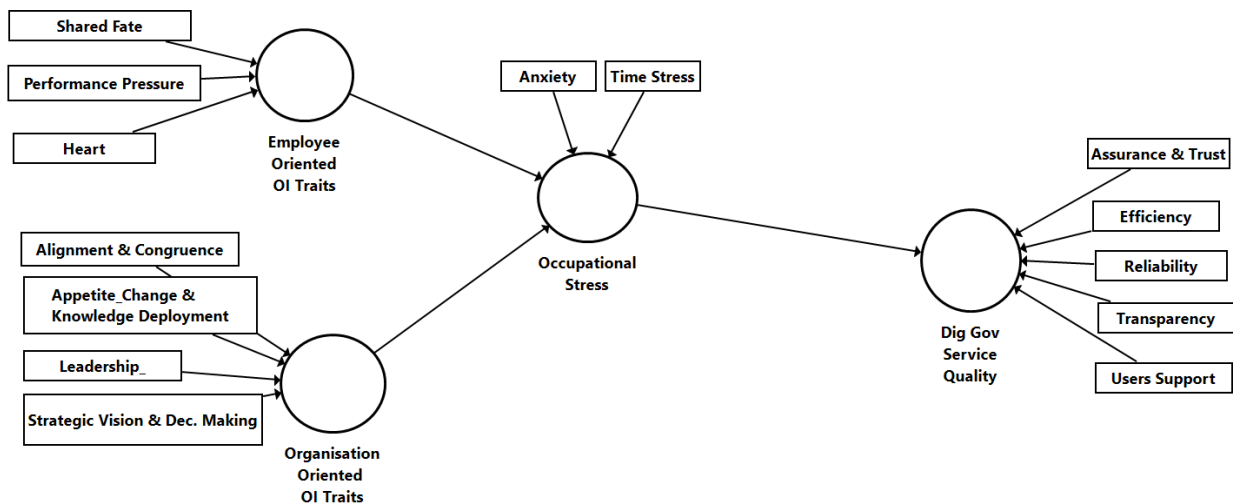
As OI Traits construct comprises third order components, the path model was first examined for the second order components for all the constructs and followed by third order components.

#### 4.4.2.1 Assessment of Second Order Components

The formative higher order components were examined using mode A for its convergent validity, indicator collinearity, and lastly statistical significance and relevance of the indicator weights. The path model is illustrated in Figure 4.2.

**Figure 4.2**

*Higher Order Components of the Measurement Model (Second Order)*



##### a) Convergent Validity

The convergent validity or redundancy analysis for the higher order components is discussed in the following section during the assessment higher order model with third order components of OI traits.

##### b) Indicator Collinearity

The indicator collinearity was assessed by examining the outer VIF as to whether the threshold value exceeds 5.0 (Hair et al., 2017). Based on the collinearity statistics analysis for the higher order components (Table 4.11), two indicators had outer VIF values slightly above 5.0, indicating

potential collinearity problem (Hair et al., 2011). Since eliminating the formative indicators purely on statistical ground is not advisable, the indicators were retained. This was due to the importance of the indicator for the construct as well as the VIF scores that were still below 10, which is considered a minimum threshold in multivariate models. (Hair et al., 2010).

**Table 4.11**

*Outer VIF Values for the Formative Indicators of Higher Order Constructs (Second Order)*

	<b>VIF</b>
Appetite_Change and Knowledge Deployment	5.185
Efficiency	5.001
Heart	4.943
Assurance and Trust	4.883
Shared Fate	4.699
Reliability	4.344
Alignment and Congruence	4.328
Anxiety	4.098
Time Stress	4.098
Strategic Vision and Dec. Making	3.943
Performance Pressure	3.935
Leadership	2.482
Users Support	2.298
Transparency	2.166

**c) Indicator Weights' Statistical Significance and Relevance**

The statistical significance was examined by running bootstrapping technique using 5000 subsamples with BCa bootstrap confidence interval and two-tailed test at 0.05 significance level (Hair et al., 2017; Ramayah et al. 2018). Based on the p-values (Table 4.12), all indicators did not demonstrate significant outer weight ( $p > .05$ ), except 'Alignment and Congruence'.

**Table 4.12***The Outer Weight Values for Higher-Order Component*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
Alignment and Congruence -> Organisation Oriented _OI Traits	0.842	0.785	0.357	2.362	0.018
Anxiety -> Occupational Stress	0.408	0.395	0.371	1.101	0.271
Appetite_Change and _Knowledge Deployment -> Organisation Oriented _OI Traits	0.091	0.078	0.439	0.208	0.836
Assurance and Trust -> Dig Gov Service Quality	0.063	0.081	0.475	0.132	0.895
Efficiency -> Dig Gov Service Quality	0.299	0.223	0.503	0.594	0.552
Heart -> Employee Oriented_OI Traits	0.565	0.561	0.344	1.643	0.101
Leadership_ -> Organisation Oriented _OI Traits	0.31	0.314	0.304	1.019	0.308
Performance Pressure -> Employee Oriented_OI Traits	0.297	0.275	0.319	0.931	0.352
Reliability -> Dig Gov Service Quality	-0.246	-0.185	0.438	0.561	0.575
Shared Fate -> Employee Oriented_OI Traits	0.187	0.185	0.354	0.528	0.597
Strategic Vision and Dec. Making -> Organisation Oriented _OI Traits	-0.205	-0.193	0.346	0.591	0.555
Time Stress -> Occupational Stress	0.624	0.619	0.36	1.732	0.083
Transparency -> Dig Gov Service Quality	0.442	0.402	0.28	1.578	0.115
Users Support -> Dig Gov Service Quality	0.556	0.492	0.296	1.876	0.061

To further examine the formative indicators with insignificant outer weight, the absolute contribution of the indicators to the construct was considered, by assessing the outer loading and T-values of the respective indicators (Cenfetelli and Bassellier, 2009). Based on the analysis outcome (Table 4.13), the outer loadings were relatively high with values of more than 0.50 and T-values of more than 1.96. Hence, all the indicators were retained (Hair et al., 2017).

**Table 4.13***The Outer Loading and T-values for Higher-Order Component*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
Alignment and Congruence -> Organisation Oriented _OI Traits	0.974	0.921	0.062	15.685	0.000
Anxiety -> Occupational Stress	0.951	0.936	0.06	15.891	0.000
Appetite_Change and _Knowledge Deployment -> Organisation Oriented _OI Traits	0.872	0.825	0.105	8.331	0.000
Assurance and Trust -> Dig Gov Service Quality	0.815	0.746	0.130	6.291	0.000
Efficiency -> Dig Gov Service Quality	0.846	0.771	0.119	7.117	0.000
Heart -> Employee Oriented_OI Traits	0.977	0.951	0.044	22.228	0.000
Leadership_ -> Organisation Oriented _OI Traits	0.838	0.795	0.113	7.428	0.000
Performance Pressure -> Employee Oriented_OI Traits	0.926	0.899	0.067	13.760	0.000
Reliability -> Dig Gov Service Quality	0.741	0.678	0.149	4.970	0.000
Shared Fate -> Employee Oriented_OI Traits	0.924	0.900	0.069	13.361	0.000
Strategic Vision and Dec. Making -> Organisation Oriented _OI Traits	0.779	0.742	0.11	7.052	0.000
Time Stress -> Occupational Stress	0.979	0.961	0.05	19.608	0.000
Transparency -> Dig Gov Service Quality	0.864	0.784	0.121	7.158	0.000
Users Support -> Dig Gov Service Quality	0.892	0.811	0.113	7.889	0.000

In terms of indicator's relevance, the indicators weight ranged between -0.246 to 0.842 which were between -1 and +1 (Table 4.12), indicating normal result without collinearity or sample size issues (Hair et al., 2018). Some indicators values indicated weak relationship (close to 0) while some exhibited strong relationship with the construct (weight close to 1).

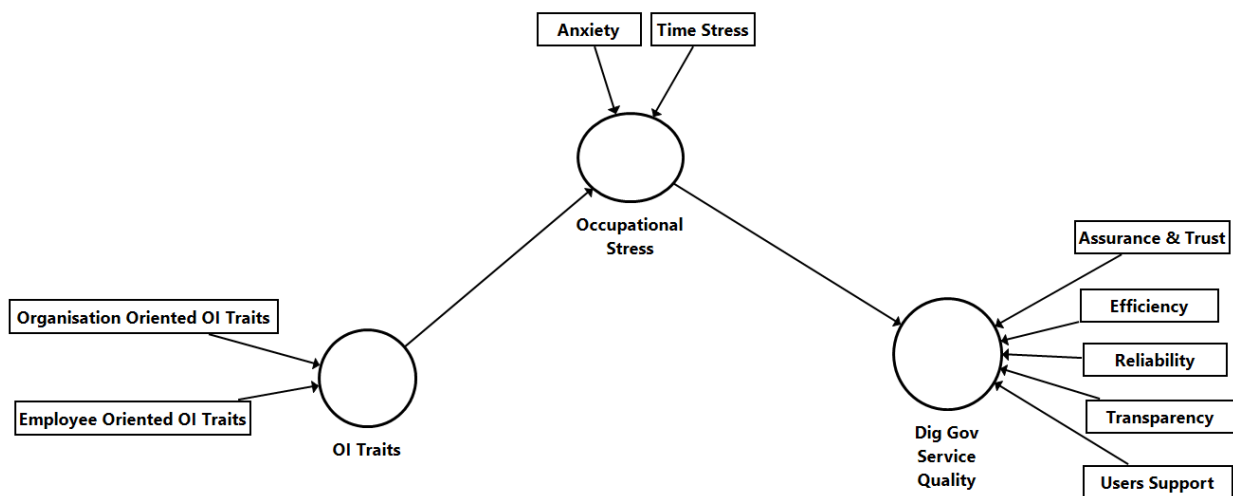


#### 4.4.2.2 Assessment of Third Order Components

The model was further assessed by including the third order components of OI Traits in the path model as illustrated in Figure 4.3. The analysis outcome for convergent validity, indicator collinearity, and lastly statistical significance and relevance of the indicator weights are discussed in the following sections.

**Figure 4.3**

*Higher Order Components of the Measurement Model (Third Order)*



##### a) Convergent Validity

The convergent validity or redundancy analysis for the higher order components was examined with the inclusion of global single (GS) item. Generally, there were three alternative reflective items namely GS1, GS2 and GS3 assigned to each construct, capturing the essence of the construct (Cheah et al., 2018). Based on the redundancy analysis, the correlation of the formatively measured construct with the GS item were all higher than 0.70 (Table 4.14), which was deemed acceptable (Hair et al., 2018).

**Table 4.14***Correlation between Formative Components and Global Single Items.*

	<b>GS1</b>	<b>GS2</b>	<b>GS3</b>
OI Traits			0.815
Dig Gov Service Quality	0.834		
Occupational Stress		0.788	

**d) Indicator Collinearity**

Based on the collinearity statistics analysis for the higher order components (Table 4.15), all indicators, including the third order components of OI Traits had outer VIF values below 5.0 except Efficiency with value of 5.001. Generally, this finding did not indicate collinearity problem among the components (Hair et al., 2011). Hence, all components were retained.

**Table 4.15**

Outer VIF for Higher Order Components (Third Order)

	<b>VIF</b>
Efficiency	5.001
Assurance and Trust	4.883
Reliability	4.344
Anxiety	4.098
Time Stress	4.098
Employee Oriented OI Traits	3.066
Organisation Oriented OI Traits	3.066
Users Support	2.298
Transparency	2.166

### e) Indicator Weights' Statistical Significance and Relevance

The statistical significance was examined by running bootstrapping technique using 5000 subsamples with BCa bootstrap confidence interval and two-tailed test at 0.05 significance level (Hair et al., 2017; Ramayah et al. 2018). Based on the p-values (Table 4.16), all indicators did not demonstrate significant outer weight ( $p > .05$ ), except 'Employees Oriented OI Traits → OI Traits' and 'Time Stress → Occupational Stress'.

**Table 4.16**

*The Outer Weight Values for Higher-Order Component (Third Order)*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
Employee Oriented OI Traits -> OI Traits	0.598	0.591	0.270	2.217	0.027
Time Stress -> Occupational Stress	0.623	0.627	0.313	1.992	0.046
Users Support -> Dig Gov Service Quality	0.556	0.500	0.295	1.887	0.059
Organisation Oriented OI Traits -> OI Traits_	0.449	0.442	0.277	1.618	0.106
Transparency -> Dig Gov Service Quality	0.442	0.402	0.277	1.596	0.111
Anxiety -> Occupational Stress	0.410	0.392	0.323	1.268	0.205
Efficiency -> Dig Gov Service Quality	0.299	0.227	0.502	0.596	0.551
Reliability -> Dig Gov Service Quality	-0.246	-0.174	0.430	0.572	0.567
Assurance and Trust -> Dig Gov Service Quality	0.063	0.061	0.457	0.137	0.891

Following this, the absolute contribution of the components to the construct was considered (Cenfetelli and Bassellier, 2009), by assessing the outer loading and T-values of the respective indicators. Based on the analysis outcome (Table 4.17), the outer loadings were relatively high with values of more than 0.50 and T-values of more than 1.96 for all components. Hence, all the indicators were retained (Hair et al., 2017).

**Table 4.17***The Outer Loading Values for Higher-Order Component (Third Order)*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
Anxiety -> Occupational Stress	0.951	0.939	0.051	18.691	0.000
Assurance and Trust -> Dig Gov Service Quality	0.815	0.743	0.127	6.413	0.000
Efficiency -> Dig Gov Service Quality	0.846	0.773	0.118	7.171	0.000
Employee Oriented OI Traits -> OI Traits	0.967	0.953	0.047	20.655	0.000
Organisation Oriented OI Traits -> OI Traits	0.940	0.927	0.058	16.115	0.000
Reliability -> Dig Gov Service Quality	0.741	0.680	0.145	5.100	0.000
Time Stress -> Occupational Stress	0.979	0.966	0.039	24.866	0.000
Transparency -> Dig Gov Service Quality	0.864	0.785	0.120	7.217	0.000
Users Support -> Dig Gov Service Quality	0.892	0.816	0.109	8.160	0.000

The indicators weight ranged between -0.246 to 0.623 which were between -1 and +1 (Table 4.16), indicating normal result without collinearity or sample size issues (Hair et al., 2018). Similar to second order model, some indicator values indicated a weak relationship (close to 0) while some exhibited a stronger relationship with the construct (weight close to 1).

#### **f) Common Method Bias**

Marker variable was incorporated into the surveys to address the common method bias issues, as the data was collected from a single source (Lindell and Whitney, 2001). This study employed a 3-item marker variable from Cognitive Rigidity Scale (Oreg, 2003), as it is theoretically unrelated to this study and demonstrated good reliability (Lindell and Whitney 2001). The marker variable was included in the structural model assessment (Figure 4.3), as it involves a model with correlation and regression analysis (Lindell and Whitney 2001; Siemsen et al., 2010). The R<sup>2</sup> and Beta coefficient values were compared before and after including the marker variable. The Beta coefficient values only exhibited slight changes from -0.321 to -0.318 (OI Traits→Occupational

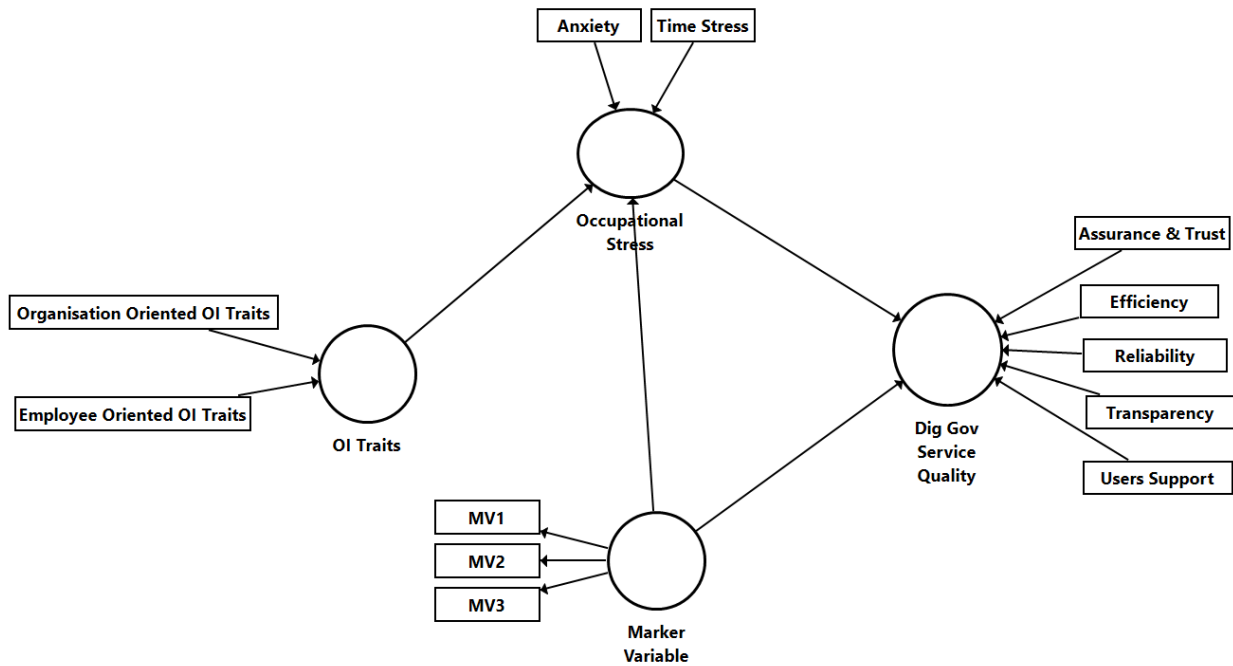
Stress) and -0.236 to -0.203 (Occupational Stress → Dig Gov Service Quality). The  $R^2$  values changed slightly from 0.103 to 0.104 (Occupational Stress) and significantly from 0.056 to 0.187 (Dig Gov Service Quality), indicating potential common method bias issues. As common method variance was observed in the assessment, the subsequent analysis was carried out by including marker variable in the model to minimise common method bias issues (Siemsen et al., 2010).

#### **4.5 Assessment of the Structural Model**

Following the assessment of the measurement model for both lower-order and higher-order components, the structural model was examined. As the structural model does not consider the lower order components (Sarstedt et al., 2019), the path model was examined for higher order constructs with the inclusion of marker variable (Figure 4.4). Assessment of the structural model involves standard assessment criteria consisting of the lateral collinearity between the constructs, coefficient of determination ( $R^2$ ), the blindfolding-based cross validated redundancy measure ( $Q^2$ ), the statistical significance and relevance of the path coefficients and lastly, the model's out-of-sample predictive power (Hair et al., 2018).

**Figure 4.4**

*Structural Model with the Inclusion of Marker Variable*



#### 4.5.1 Collinearity Assessment

Firstly, the collinearity was examined similar to the one performed on formative measurement model to ensure it did not bias the regression result (Hair et al., 2018). As such, each set of predictor constructs were examined separately for each subpart of the structural model (Hair et al., 2017; Ramayah et al., 2018). The inner VIF values for all constructs were below 5.0, indicating no potential collinearity issues (Hair et al., 2017). The results are presented in Table 4.18 below:

**Table 4.18***Inner VIF Value for the Higher-Order Components*

	<b>Dig Gov Service Quality</b>	<b>OI Traits</b>	<b>Occupational Stress</b>
Dig Gov Service Quality			
OI Traits			1.054
Occupational Stress	1.011		

**4.5.2 Coefficient of Determination (R<sup>2</sup> Value)**

The next step involved assessment of the R<sup>2</sup> value of the endogenous constructs. Essentially, R<sup>2</sup> is a measure of the model's explanatory power (Shmueli and Koppius, 2011) and referred to as in-sample predictive power (Rigdon, 2012; Sarstedt et al., 2014). Since the value of R<sup>2</sup> for all both endogenous constructs were below 0.25 (Table 4.19), it can be regarded as weak (Hair et al., 2017) or rather between moderate and substantial (Cohen, 1998). It is also important to note that R<sup>2</sup> should ideally be interpreted based on the study context (Hair et al., 2018).

**Table 4.19***The R<sup>2</sup> Values for Endogenous Construct*

	<b>R Square</b>	<b>R Square Adjusted</b>
Dig Gov Service Quality	0.118	0.113
Occupational Stress	0.104	0.100

F<sup>2</sup> effect size was not included in this analysis, since it is considered redundant to the size of the path coefficients (Hair et al., 2018).

### 4.5.3 Blindfolding and Predictive Relevance $Q^2$

The value of  $Q^2$  was assessed based on the blindfolding procedure by using omission distance (D) of 7, since the value of sample size divided by D must not be an integer (Stone, 1974; Geisser, 1974). It combined both the aspects of out-of-sample prediction and in-sample explanatory power (Shmueli et al., 2016; Sarstedt et al., 2017). The result in Table 4.20 below showed that all endogenous constructs had values above 0 which demonstrated the path model's predictive relevance for all the endogenous constructs (Hair et al., 2017).

**Table 4.20**

*$Q^2$  Values Based on the Blindfolding Procedure*

	SSO	SSE	$Q^2 (=1 - \frac{SSE}{SSO})$
Dig Gov Service Quality	1970.000	1837.992	0.067
OI Traits	788.000	788.000	
Occupational Stress	788.000	718.263	0.088

Similar to  $R^2$ , the values of  $Q^2$  for this model were below 0.25, indicating small predictive accuracy of the PLS-path model (Hair et al., 2017).

### 4.5.4 Out-of-Sample Prediction using PLSpredict

This procedure was performed to address the concern pertaining to  $R^2$  for interpreting prediction accuracy, based on the model's in-sample explanatory power, overlooking the model's out-of-sample predictive power (Shmueli, 2010; Shmueli and Koppius, 2011). With regard to this, PLSpredict was run with 10-fold cross-validation ( $k=10$ ) and 10 repetitions which split the sample into 10 equally sized data subsets (Shmueli et al., 2019; Hair et al., 2018).



**Table 4.21***PLSpredict RMSE values of PLS-SEM*

	<b>RMSE</b>	<b>MAE</b>	<b>MAPE</b>	<b>Q<sup>2</sup>_predict</b>
Transparency	0.902	0.677	217.577	0.180
Assurance and Trust	0.960	0.766	100.223	0.084
Reliability	0.976	0.780	132.541	0.053
Users Support	0.951	0.755	276.171	0.101
Efficiency	0.959	0.769	106.210	0.085
Time Stress	0.959	0.789	130.968	0.086
Anxiety	0.961	0.784	118.627	0.081

**Table 4.22***PLSpredict RMSE values of LM*

	<b>RMSE</b>	<b>MAE</b>	<b>MAPE</b>	<b>Q<sup>2</sup>_predict</b>
Transparency	0.903	0.679	216.547	0.190
Assurance and Trust	0.881	0.688	112.133	0.229
Reliability	0.884	0.685	274.463	0.222
Users Support	0.875	0.670	553.241	0.238
Efficiency	0.855	0.658	112.996	0.273
Time Stress	0.963	0.790	131.272	0.077
Anxiety	0.964	0.788	160.181	0.077

By using the guidelines by Shmueli et al. (2019), the Q<sup>2</sup> predict values were only focussed on the model's key endogenous constructs, namely Occupational Stress and Digital Government Service Quality (Table 4.21 and Table 4.22). Essentially, all indicators of Occupational Stress construct have RMSE values of PLS SEM < LM, indicating high predictive power. On the other hand, only one indicator of Digital Government Service Quality construct had RMSE values of PLS-SEM > LM, signifying low predictive power. RMSE was chosen over MAE after examining distribution of prediction errors for most of the indicators as well as recommendation to use RMSE values in most instances (Shmueli et al., 2019). However, the MAE analysis was not substantially different in this study.

#### 4.5.5 Structural Model Path Coefficients

Having substantiated the model’s explanatory and predictive power, the statistical significance and relevance of the path coefficients were examined. The significance and relevance of the structural model relationship was examined by using basic bootstrapping with 5000 subsamples, bias-corrected and accelerated Confidence Intervals and two-tailed test at 0.05 significance level. Based on the p-values and t-values (Table 4.23), both path coefficients in this model were statistically significant ( $p < 0.05$ ;  $t > 1.96$ ).

**Table 4.23**

*P-values and T-values for Higher-Order Component’ Path Coefficient*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
OI Traits -> Occupational Stress	-0.313	-0.318	0.047	6.613	0.000
Occupational Stress -> Dig Gov Service Quality	-0.203	-0.215	0.052	3.876	0.000

Since the use of p-values and t-values have been criticised and deemed insufficient to serve the reporting purpose (Demidenko, 2016; Ramayah et al. 2018), the confidence intervals bias corrected results of upper and lower bound were also assessed as in Table 4.24.

**Table 4.24**

*The Bootstrapping Results of Path Coefficients for Higher Order Components*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Bias</b>	<b>2.50%</b>	<b>97.50%</b>
OI Traits -> Occupational Stress	-0.313	-0.318	-0.005	-0.398	-0.212
Occupational Stress -> Dig Gov Service Quality	-0.203	-0.215	-0.012	-0.29	-0.08

Based on the confidence intervals bias corrected results (Table 4.24), none of path coefficients in the model included the values of 0 between upper and lower bound, indicating significant relationship between the predictor and endogenous constructs (Hair et al., 2017; Ramayah et al., 2018). In terms of its relevance, both path coefficients had negative values closer to 0, indicating weak negative relationship (close to 0) at the construct level. Specifically, the increase in a score of OI Traits construct contribute to a decrease in the score of Occupational Stress construct. Similarly, an increase in the score of Occupational Stress construct will lead to a decrease in a score of digital service quality construct.

## **4.6 Hypotheses Testing**

### **4.6.1 H1: Path Coefficient Analysis between OI Trait and Occupational Stress**

As the path coefficient between the OI Traits and Occupational Stress construct was statistically significant (H1), the path coefficient of the individual OI trait on Occupational Stress was examined. This was aimed at assessing how employee and organisational oriented OI traits had influence on occupational stress. Following this, the influence of each OI trait on occupational stress among the service providers was also examined to address the research hypotheses of this study.

Based on the Bootstrapping analysis with 1000 subsamples and a two-tailed test at a 0.05 significance level, OI traits demonstrated a significant direct effect on occupational stress. Similarly, employee-oriented OI traits demonstrated a significant direct effect on occupational stress, with  $p < 0.05$  and confidence intervals bias corrected results of upper and lower bound that did not include zero value. Conversely, organisation-oriented OI traits did not indicate any direct effect on occupational stress (Table 4.25).

**Table 4.25**

*The Bootstrapping Results of Path Coefficients for Higher Order Components of OI Traits and Occupational Stress*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>P- Value</b>	<b>Bias</b>	<b>2.50%</b>	<b>97.50%</b>
OI Traits -> Occupational Stress	-0.313	-0.318	0.000	-	-0.398	-0.212
Employee Oriented OI Traits -> Occupational Stress	-0.191	-0.188	0.013	0.003	-0.378	-0.067
Organisation Oriented OI Traits-> Occupational Stress	-0.137	-0.167	0.090	-0.03	-0.254	0.083

Next, basic bootstrapping analysis were run with 1000 subsamples and two-tailed test at 0.05 and 0.1 significance level (Table 4.46 and 4.27). It is interesting to observe how each OI trait was affecting occupational stress differently at a different significance level. The confidence intervals bias corrected results of upper and lower bound results showed that 2 out of 7 OI Traits did not include zero value at 0.1 significance level. None of the OI Traits had significant direct effect on Occupational Stress at 0.05 significance level. Hence, the ‘Alignment and Congruence’ and ‘Heart’ trait demonstrated a significant direct effect on the Occupational Stress construct, while the rest did not. Both traits had path coefficient values of -0.201 and -0.168 respectively, which can be deemed as weak negative direct effect between constructs. It is important to note that Hair et al. (2017) asserted that a significance value of 10% can be used in exploratory studies, which is in line with the aim of this study to explore theoretical extensions of Organisational Model of Stress.

**Table 4.26**

*The Bootstrapping Results of Path Coefficients for Lower Order Components of OI Traits and Occupational Stress (0.1 Significance Level)*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STD EV )</b>	<b>P Value</b>	<b>Bias</b>	<b>5.00%</b>	<b>95.00%</b>
Alignment and Congruence -> Occu Stress	-0.201	-0.188	0.12	1.668	0.096	0.013	-0.417	-0.032
Appetite for Change and Knowledge Deployment -> Occu Stress	0.052	0.046	0.146	0.355	0.723	-0.005	-0.173	0.295
Heart -> Occu Stress	-0.168	-0.169	0.109	1.543	0.123	0.000	-0.359	-0.001
Leadership - > Occu Stress	-0.045	-0.060	0.106	0.422	0.673	-0.016	-0.217	0.122
Occu Stress -> Dig Gov Service Quality	-0.236	-0.258	0.048	4.965	0.000	-0.022	-0.297	-0.142
Performance Pressure -> Occu Stress	-0.083	-0.071	0.117	0.708	0.479	0.012	-0.283	0.105
Shared Fate -> Occu Stress	-0.024	-0.033	0.12	0.198	0.843	-0.009	-0.206	0.192
Strategic vision and Dec Making -> Occu Stress	0.130	0.131	0.116	1.117	0.264	0.001	-0.058	0.321

**Table 4.27**

*The Bootstrapping Results of Path Coefficients for Lower Order Components of OI Traits and Occupational Stress (0.05 Significance Level)*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/ST DEV )</b>	<b>P Values</b>	<b>Bias</b>	<b>2.50%</b>	<b>97.50%</b>
Alignment and Congruence -> Occu Stress	-0.201	-0.190	0.128	1.567	0.118	0.011	-0.466	0.029
Appetite for Change and Knowledge Deployment -> Occu Stress	0.052	0.052	0.143	0.361	0.718	0.000	-0.244	0.315
Heart -> Occu Stress	-0.168	-0.166	0.115	1.457	0.145	0.002	-0.391	0.042
Leadership -> Occu Stress	-0.045	-0.068	0.102	0.435	0.663	-0.024	-0.228	0.140
Occu Stress -> Dig Gov Service Quality	-0.236	-0.260	0.047	5.061	0.000	-0.024	-0.301	-0.141
Performance Pressure -> Occu Stress	-0.083	-0.075	0.116	0.718	0.473	0.008	-0.34	0.129
Shared Fate -> Occu Stress	-0.024	-0.032	0.116	0.204	0.838	-0.008	-0.264	0.205
Strategic vision -> Occu Stress	0.130	0.133	0.113	1.147	0.251	0.003	-0.091	0.352

#### **4.6.2 H2: Path Coefficient Analysis between Occupational Stress and Digital Government Service Quality**

The analysis was carried out during structural model assessment as presented in Table 4.23 and 4.24. Based on the P-values and T-values along with bootstrapping analysis with 5000 subsamples at 0.05 significance level, occupational stress had a significant direct effect on digital government service quality.

### 4.6.3 H3: Mediation Analysis for OI Traits, Occupational Stress and Digital Government Service Quality

The mediation effect was assessed by examining the indirect effect of OI Traits, including both at the employees and organisation-oriented traits on Digital Government Service Quality via Occupational Stress. Hence, bootstrapping technique was used by using 5000 subsamples with BCa bootstrap confidence interval and two-tailed test at 0.05 significance level (Hair et al., 2017; Ramayah et al. 2018). Based on the indirect effect result, the indirect effect of OI Traits on service quality was significant since the confidence intervals did not include zero (Table 4.28). P-value and T-value were 0.006 and 2.772 respectively, indicating a significant indirect effect. Narrowing down the OI traits components, the employee-oriented OI Traits demonstrated a significant indirect effect on service quality, while organisation-oriented OI Traits did not.

Bootstrapping analysis was also carried out for the lower order components of OI Traits components by using 4000 subsamples at two-tailed and 0.1 significance levels. Based on the analysis outcome, ‘Alignment and Congruence’ and ‘Heart’ had a significant indirect effect on Digital Government Service Quality with the presence of Occupational Stress as a mediator. The rest of the OI traits were not significant, nevertheless (Table 4.29).

**Table 4.28**

*Mediation Analysis for Indirect Effect of Higher Order Components of OI Traits on Digital Government Service Quality*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>	<b>Bias</b>	<b>2.50%</b>	<b>97.50%</b>
OI Traits -> Dig Gov Service Quality	0.065	0.075	2.772	0.006	0.011	0.017	0.101
Organisation Oriented _OI Traits -> Dig Gov Service Quality	0.028	0.036	1.396	0.163	0.008	-0.020	0.06
Employee Oriented OI Traits -> Dig Gov Service Quality	0.039	0.041	1.814	0.07	0.002	0.009	0.093

**Table 4.29**

*Mediation Analysis for Indirect Effect of Lower Order Components of OI Traits on Digital Government Service Quality*

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Bias</b>	<b>5.00%</b>	<b>95.00%</b>
Heart -> Dig Gov Service Quality	0.035	0.036	0.002	0.000	0.085
Performance Pressure -> Dig Gov Service Quality	0.018	0.018	-0.001	-0.019	0.071
Alignment and Congruence -> Dig Gov Service Quality	0.040	0.040	0.000	0.000	0.094
Leadership -> Dig Gov Service Quality	0.008	0.011	0.004	-0.030	0.042
Shared Fate -> Dig Gov Service Quality	0.004	0.005	0.001	-0.041	0.048
Appetite for Change and Knowledge Deployment -> Dig Gov Service Quality	-0.011	-0.009	0.001	-0.060	0.040
Strategic Vision and Dec Making -> Dig Gov Service Quality	-0.027	-0.028	-0.001	-0.072	0.012

The form of mediation, as in full or partial mediation was not assessed, since examining the direct effect of the independent variable on the dependent variable has been discouraged for being an outdated approach and leading to inaccurate results (Hayes, 2013; Hayes and Rockwood, 2016; Rungtusanatham et al., 2014). Hence, the outcome of the mediation analysis confirmed the presence of mediation effect of occupational stress on the association between OI Traits and Digital Government Service Quality.

#### **4.6.4 Outcome of Hypotheses Testing**

Based on the analysis outcome above, 9 out of 21 proposed hypotheses were supported, while the remaining were not supported (Table 4.30). The strategies and recommendation that can be drawn from this finding are further discussed in Chapter 5.



**Table 4.30***Summary of Findings for Hypotheses*

<b>Hypotheses</b>	<b>Significant/ Insignificant</b>	<b>Direction</b>	<b>Decision</b>
H1: OI traits significantly influence Occupational Stress among the service providers	Significant (Table 4.25)	Negative	Supported
H1a: Employee-oriented OI traits significantly influence Occupational Stress among the service providers	Significant (Table 4.25)	Negative	Supported
H1a1: Performance Pressure significantly influences Occupational Stress among the service providers.	Insignificant (Table 4.26)	Negative	Not Supported
H1a2: Shared Fate significantly influences Occupational stress among the service providers.	Insignificant (Table 4.26)	Negative	Not Supported
H1a3: Heart significantly influences Occupational Stress among the service providers.	Significant (Table 4.26)	Negative	Supported
H1b: Organisation-oriented OI traits significantly influence Occupational Stress among the service providers.	Insignificant (Table 4.25)	Negative	Not Supported
H1b1: Strategic Vision and Decision Making significantly influences Occupational Stress among the service providers.	Insignificant (Table 4.26)	Positive	Not Supported
H1b2: Appetite for Change and Knowledge Deployment significantly influences Occupational Stress among the service providers.	Insignificant (Table 4.26)	Positive	Not Supported
H1b3: Alignment and Congruence significantly influences Occupational Stress among the service providers.	Significant (Table 4.26)	Negative	Supported
H1b4: Leadership significantly influences Occupational Stress among the service providers.	Insignificant (Table 4.26)	Negative	Not Supported

H2: Occupational Stress among the service providers significantly influences Digital Government Service Quality.	Significant (Table 4.23 and 4.24)	Negative	Supported
H3: Occupational Stress among the service providers mediates the relationship between OI Traits and Digital Government Service Quality.	Significant (Table 4.28)	-	Supported
H3a: Occupational Stress among the service providers mediates the relationship between Employee-oriented OI Traits and Digital Government Service Quality.	Significant (Table 4.28)	-	Supported
H3a1: Occupational Stress among the service providers mediates the relationship between Performance Pressure and Digital Government Service Quality.	Insignificant (Table 4.29)	-	Not Supported
H3a2: Occupational Stress among the service providers mediates the relationship between Shared Fate and Digital Government Service Quality.	Insignificant (Table 4.29)	-	Not Supported
H3a3: Occupational Stress among the service providers mediates the relationship between Heart and Digital Government Service Quality.	Significant (Table 4.29)	-	Supported
H3b: Occupational Stress among the service providers mediates the relationship between Organisation-oriented OI Traits and Digital Government Service Quality.	Insignificant (Table 4.28)	-	Not Supported
H3b1: Occupational Stress among the service providers mediates the relationship between Strategic Vision and Decision Making and Digital Government Service Quality.	Insignificant (Table 4.29)	-	Not Supported
H3b2: Occupational Stress among the service providers mediates the relationship between Appetite for Change and Knowledge Deployment and Digital Government Service Quality.	Insignificant (Table 4.29)	-	Not Supported

H3b3: Occupational Stress among the service providers mediates the relationship between Alignment and Congruence and Digital Government Service Quality.	Significant (Table 4.29)	-	Supported
H3b4: Occupational Stress among the service providers mediates the relationship between Leadership and Digital Government Service Quality.	Insignificant (Table 4.29)	-	Not Supported

## 4.7 IPMA Assessment

The goal of conducting IPMA was to identify potential areas of improvement, based on predecessors' importance as well as performance towards the target construct. This is essentially an extended version of standard analysis of path coefficient analysis by considering total effects on a target construct with the average latent variable scores of the construct's predecessors. Additionally, IPMA may provide valuable findings for predecessors with non-significant total effect on a digital service quality, as to whether more resources were allocated on these predecessors (Ringle and Sarstedt, 2016). Specifically, the IPMA was aimed at identifying the priority factors (OI traits and occupational stress) in sustaining the quality of digital government services.

### 4.7.1 Identification of Priority Factors (OI Traits and Occupational Stress) in Sustaining the Quality of Digital Government Services.

To serve this purpose, three criteria were first examined prior to running the IPMA analysis (Sarstedt and Mooi, 2014). First, it required all indicators in the path model to use a metric or quasi-metric scale. Secondly, all the indicator coding was adjusted accordingly so they were in the same direction i.e., '1= negative outcome' and '7= positive outcome'. In this regard, the indicators score for 'Occupational Stress' were recoded, so a higher value represents lower stress or a better outcome. Lastly, the values of the outer weights (Table 4.31) were examined to ensure they have positive values (Ringle and Sarstedt, 2016).

**Table 4.31***Outer Weight Values for the Indicators*

<b>Indicators</b>	<b>Outer Weight</b>	<b>Indicators</b>	<b>Outer Weight</b>
AC1	0.209	TS1	0.125
AC3	0.202	TS2	0.145
AC4	0.272	TS3	0.135
ALC2	0.223	TS4	0.126
ALC3	0.204	TS5	0.155
ALC4	0.206	TS6	0.129
ALC5	0.254	TS7	0.215
H1	0.310	TS8	0.183
H2	0.281	ANX1	0.275
H3	0.262	ANX2	0.340
H4	0.304	ANX3	0.308
KD1	0.201	ANX4	0.257
KD2	0.290	AT1	0.387
KD4	0.270	AT2	0.381
LD1	0.124	AT3	0.357
LD2	0.170	EF2	0.224
LD3	0.182	EF3	0.220
LD4	0.170	EF4	0.284
LD5	0.206	EF5	0.209
LD6	0.201	R1	0.255
LD7	0.172	R2	0.233
PP1	0.294	R3	0.232
PP2	0.296	R4	0.243
PP3	0.302	R5	0.203
PP4	0.278	T1	0.401
SF1	0.227	T2	0.324
SF2	0.254	T3	0.398
SF3	0.270	EF1	0.228
SF4	0.212	US1	0.304
SV1	0.336	US2	0.276
SV2	0.247	US3	0.257
SV3	0.289	US4	0.269
SV4	0.238		
SV5	0.232		

Following this, the IPMA analysis was carried out by selecting ‘Digital Government Service Quality’ as the target construct. Next, the ‘All Predecessors of the Selected Target Construct’ option was selected to include OI Traits along with Occupational Stress (mediator). Similarly, each indicator’s minimum and maximum values were specified from 1 to 7 for the rescaling of the data to a ‘0-100’ scale. Bootstrapping with 1000 subsamples and a 10% significance level was run to examine the total effect of predecessors on the target construct (Table 4.32).

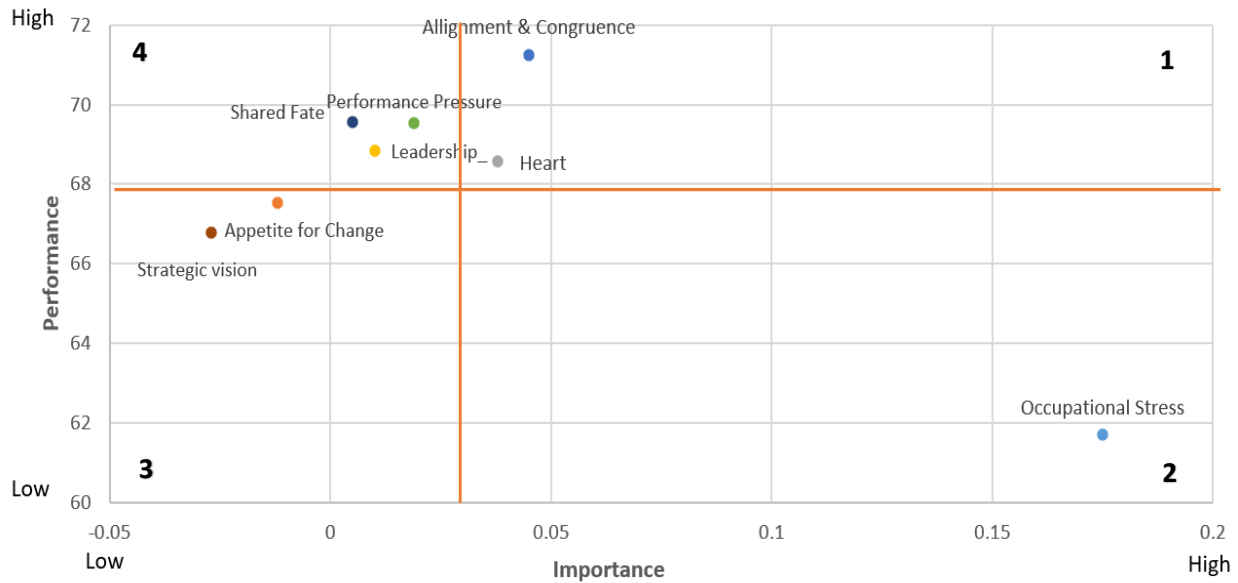
**Table 4.32**

*The Importance and Performance Values for All Predecessors of Digital Government Service Quality*

	<b>Importance (Total effect)</b>	<b>Performance (Average latent variable scores)</b>	<b>Significance of Total Effects on Target Construct</b>
Alignment and Congruence	0.045	71.249	Significant
Appetite for Change and Knowledge Deployment	-0.012	67.527	Insignificant
Heart	0.038	68.583	Significant
Leadership	0.010	68.839	Insignificant
Occupational Stress	0.175	61.707	Significant
Performance Pressure	0.019	69.540	Insignificant
Shared Fate	0.005	69.572	Insignificant
Strategic Vision and Decision Making	-0.027	66.772	Insignificant
<b>Mean Value</b>	0.032	67.974	

**Figure 4.5**

*Adjusted IPMA Map of the Digital Government Service Quality (Construct Level, Unstandardised Effects)*



*Note: Quadrant 1: 'Keep up the good work'; 2: 'Concentrate here'; 3: 'Low priority'; 4: 'Possible Overkill'.*

Based on the IPMA diagram (Figure 4.5), all predecessors have a performance value above 60% and an importance value between -0.012 to 0.175. In interpreting the outcome of IPMA, predecessors in Quadrants 1 and 2 are often regarded as important traits and require managerial attention towards optimising the performance of the target construct (digital service quality). That means those traits in Quadrants 3 and 4 are the low-priority predecessors that are possibly over-emphasised or can be neglected.

The predecessors with significant total effect, namely 'Alignment and Congruence' and 'Heart' in Quadrant 1 indicate equally high performance and importance. This is in line with significant indirect effect of these two predecessors on digital service quality. It is also interesting to note that 'Occupational Stress' was positioned in Quadrant 2 as the least performing predecessor with

highest importance in comparison with other predecessors, denoting the need for higher managerial attention in sustaining digital service quality. On the other hand, the position of ‘Appetite for Change and Knowledge Deployment’ and ‘Strategic Vision and Decision Making’ in Quadrant 3 are justified, as these traits are statistically insignificant indirect effects on digital service quality during mediation analysis. The predecessors namely ‘Shared Fate’, ‘Leadership’, and ‘Performance Pressure’ in Quadrant 4 are the insignificant predecessors with the highest performance but least importance towards digital government service quality. While traits in Quadrants 3 and 4 denote a lack of importance towards sustainability of digital service quality, the outcome of this finding is further cross-examined with the qualitative data finding which is discussed in Chapter 5 and 6.

#### **4.8 Conclusion**

This chapter provides an overview of the PLS-SEM analysis carried out based on the 394 data collected from digital government service providers comprising 4 clusters and 30 agencies. The data was first screened and examined for demographic profile and distribution using SPSS and WebPower, prior to assessing the measurement and structural model via disjoint two-stage approach. Four items were deleted, while another four were reassigned to another components to improve the reliability and validity of the instrument. Additionally, two lower order components ‘Knowledge Deployment’ and ‘Appetite for Change’ were merged as it was theoretically plausible and to fulfil statistical requirement.

Upon fulfilment of measurement and structural model requirement, the proposed hypotheses were tested. Based on the analysis, 9 out of 21 hypotheses were supported. Generally, only two OI Traits namely ‘Alignment and Congruence’ and ‘Heart’ demonstrate significant direct effect on Occupational stress as well as indirect effect on Digital Service Quality. In other words, Occupational Stress only mediates the relationship between these two OI traits and Digital Government Service Quality. Advanced analysis was carried out with IPMA to gain additional insights to prioritise predecessors contributing to Occupational Stress and Digital Government Service Quality. The ‘Heart’ and ‘Alignment and Congruence’ traits indicate both high importance

and performance towards service quality. It was interesting to note that ‘Occupational Stress’ exhibits the highest importance yet lowest performance compared to other predecessors in sustaining service quality. The rest of the traits demonstrate low importance in sustainability of digital service quality. In addition to quantitative data analysis, this study also utilises qualitative data from open ended questions in the survey form to support the findings of quantitative data analysis which is discussed in Chapter 5.



## CHAPTER 5: QUALITATIVE DATA ANALYSIS

This chapter begins with a brief description about the respondents' background and the type of qualitative data collection method employed in this study. This is aimed at gaining additional insights on organisational aspects that requires improvement to sustain digital government service quality and enhance psychological well-being of the service providers. Essentially, this study uses NVivo 12 software to create the coding, assign references to the respective codes and finally to generate the Tree-Map chart. Following this, the findings of data analysis are discussed and cross examined with the quantitative data findings, which are later incorporated into strategy formulation.

### 5.1 Background

This study employs qualitative data analysis to validate and enrich the quantitative data findings. To serve this purpose, this study utilises the participants' feedback obtained via the open-ended feedbacks in the survey forms. Additionally, some additional insights were obtained from experts and practitioners about the findings of quantitative data analysis as discussed in Chapter 4, which can be translated into strategies for the public sector. Specifically, the aims of each qualitative data source are as follows:

- a) the open-ended questions collected from the survey participants are aimed at eliciting additional information to validate and expand the outcome from quantitative data analysis. In this context, the responses from open-ended questions provide information on area of improvement for sustaining digital service quality and managing occupational stress.
- b) the interviews with the experts and practitioners are more focussed at justifying the outcome of quantitative data analysis, which cannot be explained via mediation analysis or IPMA diagram. Moreover, the sessions have helped to propose relevant strategies for the Malaysian public sector.

## 5.2 Data from Open-Ended Questions

Essentially, the questions were included in the same survey form used for quantitative data analysis. These questions were optional questions aimed at giving more opportunities to the participants to elaborate on the aspects that requires improvement in sustaining the service quality whilst ensuring the psychological well-being of the service providers. The open-ended questions are as follows:

- a) Which aspects need to be improved the most to heighten or sustain your organisation's digital government service quality?  
State the reasons for your suggestions.
  
- b) Based on your experience, which organisational aspects need to be improved the most to ensure the employees' psychological well-being in your organisation?  
State the reasons for your suggestions.

Based on the survey responses, 93 and 152 survey participants completed Question (a) and (b) respectively. To analyse the qualitative data, Nvivo 12 software was used. Firstly, relevant codes were developed, as coding can be created based on definition, perspectives, views, contexts, processes, activities, events, strategies, relationships and social structures (Bogdan and Biklen, 1992) and have to relate to one another in coherent ways and relevant to the context of the study. However, the codes were not restricted to the initially created codes in case there was emerging new aspects were found in the data. To serve this purpose, the initial codes were created based on the seven OI traits as proposed in the research model to ensure consistencies to aid the justifications of the quantitative findings. At the same time, additional code namely 'Psychological Well-being' was included as this aspect was mentioned by most of the respondents for Question (a) above. The definition and details of the codes used for the data analysis are illustrated in Table 5.1 below.

**Table 5.1***Definition and Details of the Codes for Feedback Analysis*

<b>Codes</b>	<b>Definition</b>	<b>Details</b>
<b>Leadership</b>	leaders who have the capacity to steer the engine of the organisational vehicle in the desired direction. Since intelligence ought to be inculcated at all levels, leadership in OI context is represented by leaders at all levels in contributing to the success of an organisation. (Albrecht, 2003)	<ul style="list-style-type: none"> <li>- share plans, priorities etc with employees</li> <li>- promote openness to change</li> <li>- demonstrate integrity, enthusiasm, commitment and appreciation for knowledge</li> <li>- act quickly on unproductive employee's issues.</li> </ul>
<b>Strategic Vision and Decision Making</b>	the capacity of an organisation to create, evolve and express its purpose, in order to improve decision making or innovate for competitive advantage. (Albrecht, 2003; Falletta and Combs, 2018; UN, 2020). It is about 'do we know where we are going?'	<ul style="list-style-type: none"> <li>- effective process for developing its strategic thinkers.</li> <li>- ongoing engagement with stakeholders to meet current challenges.</li> <li>- systematic process for environmental scanning</li> <li>- annual strategic review, involving leaders at all levels.</li> </ul>
<b>Shared Fate</b>	it revolves around the people who have the same common purpose and understand their roles in the organisation. Thus, they act synergistically to accomplish the organisational mission and vision. (Albrecht, 2003). It is about 'are we all in the same boat?'	<ul style="list-style-type: none"> <li>- employees at all levels understand the overall strategic concept of the organisation</li> <li>- express sense of belonging and partnership with the organisation and management.</li> <li>- help and support one another in getting work done, despite from different departments.</li> <li>- believe in the organisation's prospects for success.</li> </ul>
<b>Appetite for Change and Knowledge Deployment</b>	it is about the people in the organisation who want to reinvent the business models as a way to react to the environment and seek opportunity to learn new ways leading to a successful organisation. This also includes the extent to which the organisation produces,	<ul style="list-style-type: none"> <li>- encouragement for innovation</li> <li>- bureaucratic rules, outdated policies are kept to a minimum.</li> </ul>

	<p>transforms, share, organise and apply knowledge. Hence, it involves relevant support and inspiration for new ideas and inventions to challenge the status quo. (Albrecht, 2003). It is about ‘do we share our knowledge and information’ and ‘can we face the unexpected challenges?’</p>	<ul style="list-style-type: none"> <li>- evolving service delivery that keeps up with the changing demands.</li> <li>- programs to support continuous learning and career development for employees.</li> <li>- allow employees to share ideas and information.</li> <li>- information systems or tools that support the employees in doing their jobs effectively.</li> </ul>
<b>Heart</b>	<p>the ‘discretionary effort’ or willingness of employees to give over and above than what they are expected to provide in ensuring the organisational success. (Albrecht, 2003). It is about ‘do we have the spirit and energy to succeed?’</p>	<ul style="list-style-type: none"> <li>- express a sense of pride in belonging to the organisation/ employee engagement</li> <li>- willing to put in extra effort to help the organisation in achieving goals.</li> <li>- express optimism regarding their career growth</li> <li>- believe that management has their best interests at heart.</li> </ul>
<b>Performance Pressure</b>	<p>the commitment of every employee to own the performance proposition. This implies the sense of what needs to be accomplished and thus accepted as a self-imposed set of mutual expectations with the leaders for shared success. (Albrecht, 2003). It is about ‘are we serious about getting things done?’</p>	<ul style="list-style-type: none"> <li>- understand their roles, responsibilities and expected contributions.</li> <li>- believe their rewards and career successes are determined by their job performance.</li> <li>- feel their work contributes to the success of the organisation.</li> <li>- receive feedback, rewards etc about their performance.</li> </ul>
<b>Alignment and Congruence</b>	<p>the structure of how the organisation is designed to ensure work and responsibilities are properly distributed, rules are exercised for interaction with one another and the environment, as well as the people are organised for the mission accomplishment. (Albrecht, 2003; Falletta and Combs, 2018).</p>	<ul style="list-style-type: none"> <li>- overall organisation structure which is appropriate to its core business.</li> <li>- conducive work environment</li> <li>- organisational missions that are aligned to facilitate coordination between units.</li> <li>- authority and responsibility that are delegated to multiple level/ less bureaucracy.</li> </ul>

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<b>Psychological Well-being</b>	A combination of positive affective states such as happiness and functioning with optimal effectiveness in individual and social life (Deci and Ryan 2008). It is the combination of feeling good and functioning effectively reflected via thoughts, emotions, and behaviour (Huppert, 2009; ILO, 2016).	<ul style="list-style-type: none"> <li>- Resources (work procedures, systems, tools etc.) that facilitate employee's performance.</li> <li>- Work related stress among the employees.</li> <li>- Psychology and stress management</li> </ul>
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### 5.3 Experts' and Practitioners' Insights

In addition to feedback obtained from open-ended questions in the survey forms, this study also takes an approach to get supplementary insights from the experts and practitioners to justify the findings from quantitative analysis and propose relevant strategies for top management of the Malaysian public sector. The list of experts is presented in Table 5.2 below.

**Table 5.2**

*Details of the Experts and Practitioners Participated in the Study*

<b>Expert No.</b>	<b>Designation/ Title</b>	<b>Organisation</b>
1.	Professor of Operations and Innovation Management	University of Nottingham UK
2.	Professor of Information System	University of Nottingham UK
3.	Associate Professor of Work Psychology	University of Nottingham UK
4.	Assistant Professor of Work Psychology	University of Nottingham UK
5.	Associate Professor of Public Management	Blavatnik School of Government, University of Oxford UK
6.	Professor of Digital Innovation	University of Nottingham UK
7.	Associate Professor of Work Psychology	University of Nottingham UK
8.	Associate Professor of Organisational Behaviour	University of Nottingham UK
9.	Deputy Director of Management	Attorney General's Chambers, Malaysia
10.	Senior Principal Asst. Director of Management Research	Malaysian Administrative Modernisation Management Planning Unit
11.	Senior Principal Asst. Director of Staffing and Organisation	Public Service Department of Malaysia
12.	Deputy Director of Governance and Strategic Development	Public Service Department of Malaysia

The semi-structured interview questions generally comprised general questions and some questions specific to their field of expertise (Appendix 8 and 9). However, no formal content analysis tool was used for this data as the focus was to gather rich insight to support quantitative data findings as well as the recommendations on possible area of improvement for the Malaysian public sector (Perry, 1998).

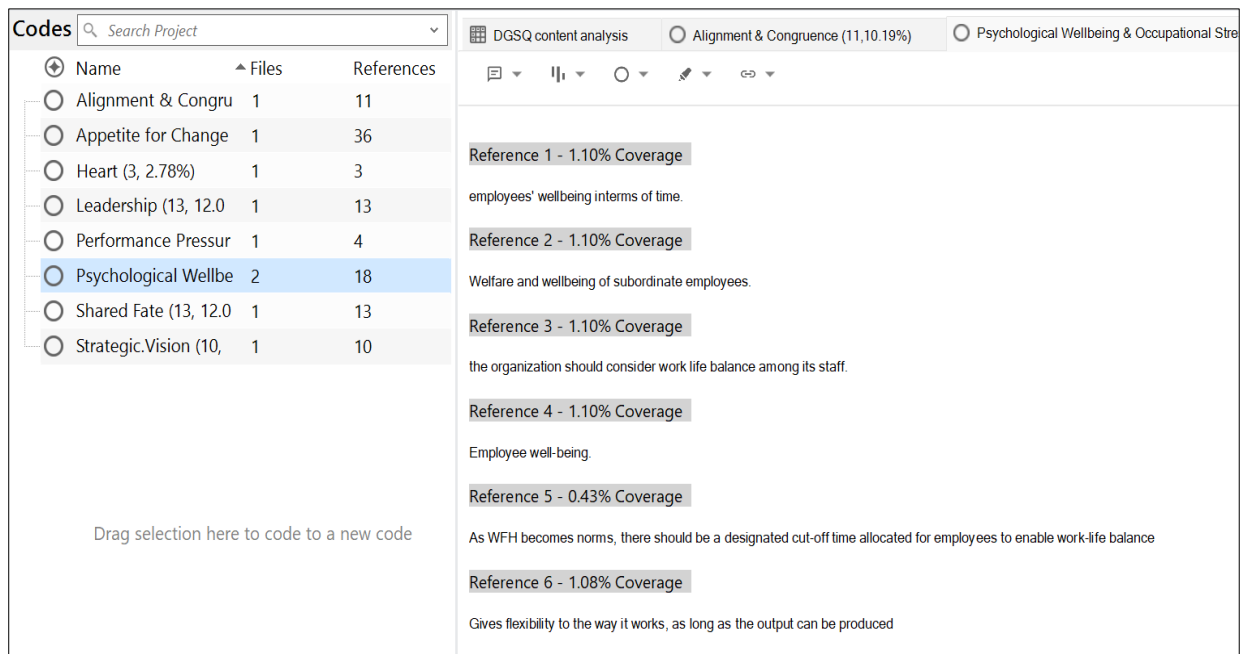
## 5.4 Outcome of Data Analysis

### 5.4.1 Area of Improvement to Sustain the Digital Government Service Quality

Based on the coding assigned to the 93 respondents' feedbacks, there were a total of 108 code references assigned to eight codes for area of improvement for digital service quality (Figure 5.1, Table 5.3). Tree-Map charts were generated and presented in Figure 5.2.

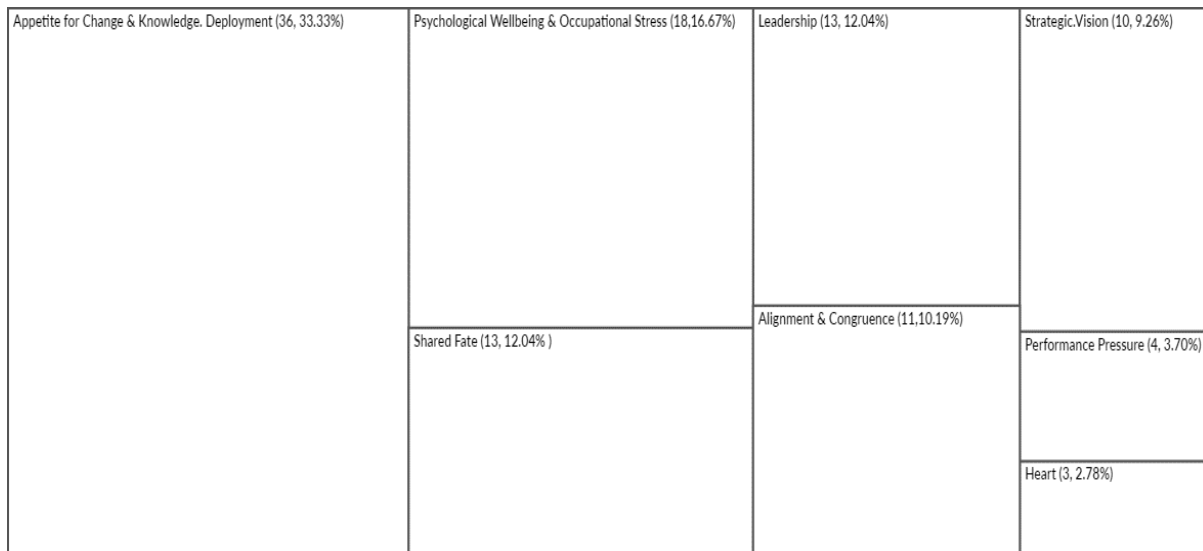
**Figure 5.1**

*Example of References Assigned to Psychological Well-being Code for Area of Improvement for Digital Service Quality*



**Table 5.3***Coding References and Percentage by Codes: Area of Improvement for Digital Service Quality*

<b>Codes</b>	<b>No. of coding references</b>	<b>Percentage (%)</b>
Alignment and Congruence	11	10.19
Appetite for Change and Knowledge Deployment	36	33.33
Heart	3	2.78
Leadership	13	12.04
Performance Pressure	4	3.70
Psychological Well-being and Occupational Stress	18	16.67
Shared Fate	13	12.04
Strategic Vision and Decision Making	10	9.26
	<b>108</b>	<b>100.00</b>

**Figure 5.2***Tree Map on Aspects that Requires Improvement to Sustain the Digital Government Service Quality*

Based on the Tree-Map chart in Figure 5.2, this study finds that ‘Appetite for Change and Knowledge Deployment’ is the aspect that participants quoted the most for improvement in order to sustain service quality (33.33%). This is followed by ‘Psychological Well-being and Occupational Stress’ aspect (16.67%), ‘Leadership’ and ‘Shared Fated’ with equal



representation of 12.04% each. Other traits such as ‘Alignment and Congruence ‘was still quoted by 10.19% of the participants while the rest of the traits were not highly emphasised as area of improvement in sustaining service performance. With regard to this, the traits that were highly quoted by participants for improvement will be discussed below. At the same time, supporting statement from the experts and practitioners will also be utilised in the discussion below.

#### **5.4.1.1 Appetite for Change and Knowledge Deployment**

‘Appetite for Change and Knowledge Deployment’ appears to be the area of improvement that was mentioned the most (33.33%) by the participants for sustaining the service quality. It is interesting to observe concerns raised by most participants on the lack of training (Participant 10, 16, 27, 34, 35, 38,45, 64, 65) along with the need to inculcate better sharing of information of knowledge within the organisation (Participant 1,5,6,9,11, 12, 13, 15, 24, 35). Besides, other issues which brought to the attention of this study are the need to ensure service delivery evolves with the varying needs of stakeholders and technological advancement (Participant 14, 41, 52, 61, 63, 72). Some of the comments by the participants are presented below.

##### **Participant 15:**

“...Knowledge sharing for each digital service function in the department is critical because the department constantly relocates their officers (in and out), which requires knowledge sharing to be implemented from time to time.”

##### **Participant 72:**

“The current digital services need to be enhanced from time to time to ensure it is in line with latest users and license holders needs and requirement.”

This is somewhat inconsistent with quantitative data analysis where this trait does not only exhibit insignificant path coefficient but also appeared to be low priority trait in the IPMA diagram towards sustaining the digital government service quality. Nevertheless, this outcome may not entirely indicate their low priority factors in sustaining service quality. As Expert 6 and 9 put it, this could be due to innovation and information sharing practices that have been in place for some time with no continuous enhancement and upcoming new initiatives in the

pipeline. This could possibly make the employees fail to see any significance or importance of these initiatives they bring on the service quality.

**Expert 6:**

“...appetite for change can be about having the right culture to drive the innovation. So, if it is not there, people don't see the importance of having it. Maybe it is already there. There is no new change they are seeing I guess.”

“...also, this is about whether there is vision for the organisation, people use it and deliver it. I believe this has been incorporated with the existing practice. They are used to it. So, they don't see the importance of it anymore”.

**Expert 9:**

“...If I were to give an example from one of these. Say, ‘Appetite for Change’, do you really see us making an innovation? I mean a serious and real one? All is see we only have initiatives like EKSA, MS ISO maybe. How can the employees see the significance of this trait when it is just being done that same old way all these years? Maybe that's why you get that sort of results.

Hmm, another one maybe. Maybe our leaders too, are not that supportive towards to innovate the way we do things. And are the decisions made by management good and convincing enough? These things will influence the significance of these traits to the employees.”

Following the discussion above, this study takes a standpoint of considering ‘Appetite for Change and Knowledge Deployment’ as one of the important predecessors in sustaining service quality.

**5.4.1.2 Psychological Well-being and Occupational Stress**

Following ‘Appetite for Change and Knowledge Deployment’ trait, the ‘Psychological Well-being’ turned out to be the second highest quoted aspects (16.67%) by the participants. This is in line with its’ significant direct effect on service quality as well as its’ position in IPMA signifying high importance and low performance. The importance of psychological well-being aspect towards service quality was indeed highlighted by most participants and supported by experts as follows.

**Participant 53:**

“...the organisation should consider work life balance among its staff.”

**Participant 57:**

“As ‘work from home’ becomes norms, there should be a designated cut-off work time for employees to have work-life balance...”

**Participant 87:**

“The Human Resource Division is obliged to take care of the well-being of its people so that they always have fun and stress-free in carrying out their duties.”

**Expert 11 (Practitioner):**

“...We are dealing with lots of stress because of the nature of our work. The people we are dealing with. It is not just our colleagues and bosses in the organisations. We have these stakeholders who are politicians and all that, the citizens, businesses. Still, above all, you need to always remember to look after the image of the public sector since you are actually representing them. That can be related to why civil servants are stressed out.”

Considering the importance of occupational stress on service quality, this study gives high consideration on this element by proposing intervention approaches that can be incorporated into organisational practices which is discussed in Chapter 6. This approach is also supported by experts and participants as illustrated in the following comments.

**Participant 88:**

“...propose in creating a transparent and active counselling team to assist employees in dealing with psychological stress, especially the ones to do with emotional and mental pressure from the job target setting, work distribution, leadership.”

**Expert 4:**

“...occupational stress is something that management always overlook, while putting too much emphasis on quality and performance at work.”

**Expert 5:**

“I think it will be very reasonable to propose stress management intervention for the employees, which can be drawn from 3 level: Primary, Secondary and Tertiary.”

**Expert 8:**

“...Maybe this is meant to send message to management, which I think is a form of manifestation of their feelings about well-being of the employees. I think it’s worthy to examine the nature of work process and design in the organization.”

**Expert 10:**

“...I think stress is something common nowadays. However, when it comes to a stage where it affects your performance and life, it is no good. So, we need to have some sort of intervention to manage stress or perhaps early alarm or warning mechanism in place to detect early symptoms among stress among employees.

**5.4.1.3 Leadership and Shared Fate**

Both ‘Leadership’ and ‘Shared Fate’ traits are both ranked as third aspects (12.04%) that requires improvement in sustaining the service quality. While both predecessors demonstrate insignificant path coefficient as well as perceived as less important traits (IPMA) towards ensuring service quality, the participants still felt the need of improve aspects such as teamwork spirit and leadership qualities particularly in terms of integrity in handling issues and clearer direction from management. Some of the comments are presented below.

**Participant 60:**

“...Inculcate closer cooperation between all divisions, units and institutes.”

**Participant 82:**

“...involvement of higher managerial level in every stage of system development.”

**Participant 5:**

“...incompetent and indecisive leader, delayed actions, not multitasking, fail to communicate effectively and thoroughly and lack of integrity...”

Similar to the ‘Appetite for Change and Knowledge Deployment’ trait, ‘Leadership’ and ‘Shared Fate’ exhibit insignificant direct effect along with low importance values in IPMA outcome. However, this might not necessarily imply irrelevance of the predecessors in sustaining the digital service performance. In fact, it could possibly be contributed by the failure of the employees to perceive the importance of these traits. This is in line with the experts’ viewpoint who argued that these aspects could have already been in place for some time without any new changes, contributing to such perceptions among the employees.

**Expert 1:**

“...This does not necessarily mean leadership is not important. Maybe there are more leadership values these people are expecting from their leaders so that it looks more important to them.”

**Expert 6:**

“For leadership, maybe it is less visible, less clear when it comes to importance. When there is no change of leaders on a frequent basis, they just see the same thing. Nothing new and the impact was not like it used to be earlier.”

“... I think those things are not new anymore to the employees. Maybe they have clear sense of this so called ‘shared fate’. It is already part of the organisation’s practice. Similarly, they may think, we already know each other, our roles. So, there is nothing new to trigger new impact to them.”

**Expert 11:**

“...When the respondents perceived them as not so important, maybe they are expecting more you know. Especially the leaders. The leaders may not give them the actual direction about the digital transformation and other initiatives like MS ISO, EKSA etc. It is something like the leaders themselves may not embrace the aspirations they set for the organisations. They just tell their staffs to do it for the sake of complying to the central agency’s directive. So, when the leaders are not serious about it, no one else would.”

These findings provide an important avenue to consider ‘Shared Fate’ and ‘Leadership’ as a potential source of job resources in proposing strategies to the Malaysian public sector, as area of improvement in both aspects were highlighted by the participants.

#### **5.4.1.4 Alignment and Congruence**

This trait is not the most critical aspects that requires improvement based on the Tree-Map chart (10.19%). This is consistent with the IPMA outcome which gives the impression that most practices under this trait were satisfactory in sustaining the digital service quality. However, this study still highlight some areas on ‘Alignment and Congruence’ aspects that need to be improved in sustaining the digital service quality. Though the data may not have represented the whole sample, few respondents highlighted about unbalanced workload distribution, inadequate resources, and tools to support their work.

#### **Participant 43:**

“...enhance existing infrastructure and resources in line with the agency’s core business”

#### **Participant 20:**

“...management to be aware of the need for additional posts so that the production of work is better and supported by technically competent staffs.”

This finding was further justified by some of the experts who felt that the outcome could be primarily driven by the fact that the service providers are contented by the structure and alignment of the organisation, as well as having the right feeling and trusts against the management (Expert 2).

#### **Expert 2:**

“That simply mean everything is in place and they are happy about it”.

In light with this outcome, relevant strategies on ‘Alignment and Congruence’ are discussed in Chapter 6.

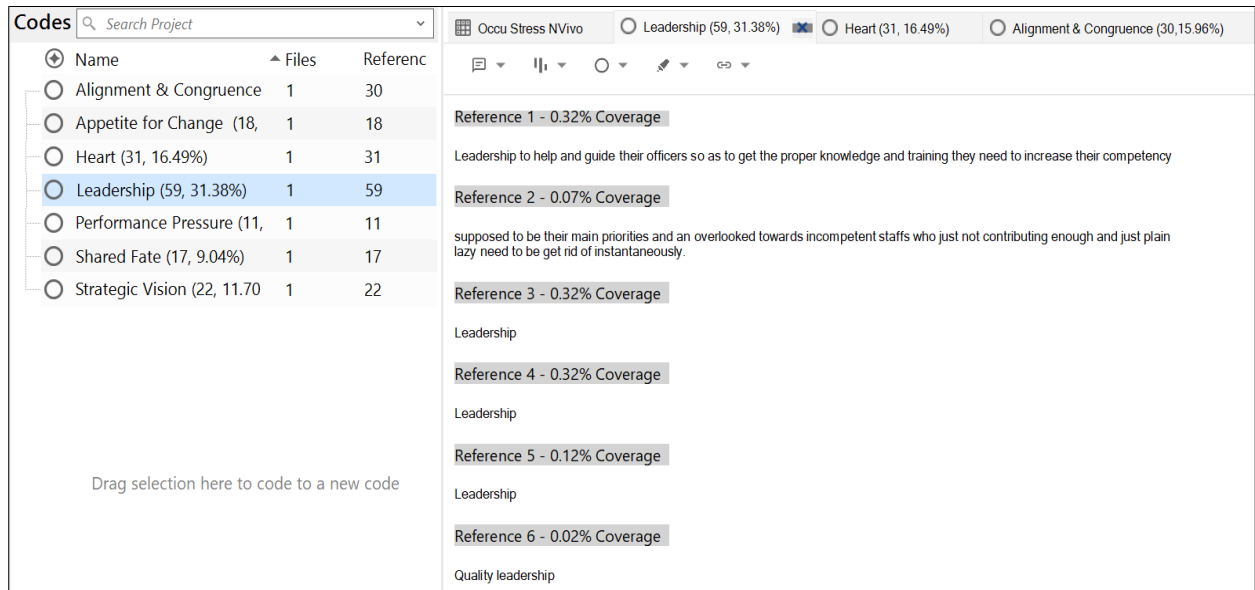
### **5.4.2 Area of Improvement to Ensure the Psychological Well-being of the Service Providers**

Based on the feedbacks obtained from 153 participants, 188 code references were assigned to seven codes for Question (b) on area of improvement for psychological well-being among the

service providers (Figure 5.3, Table 5.4). Following this the Tree-Map chart is generated (Figure 5.4) to provide better representation of the aspects for improvement.

**Figure 5.3**

*Example of References Assigned to Leadership Code for Area of Improvement for Psychological Well-being*



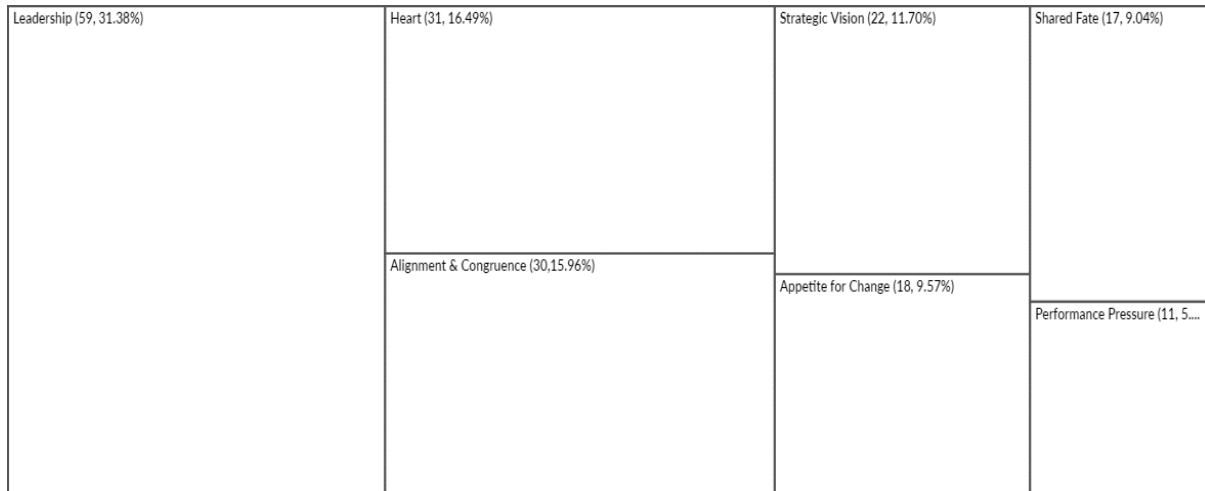
**Table 5.4**

*Coding References and Percentage by Codes: Area of Improvement for Psychological Well-being*

Codes	No. of coding references	Percentage (%)
Alignment and Congruence	30	15.96%
Appetite for Change and Knowledge. Deployment	18	9.57%
Heart	31	16.49%
Leadership	59	31.38%
Performance Pressure	11	5.85%
Shared Fate	17	9.04%
Strategic Vision and Decision Making	22	11.70%
	<b>188</b>	<b>100.00</b>

**Figure 5.4**

*Tree Map on Aspects that Requires Improvement to Ensure the Psychological Well-being of the Service Providers*



Based on the analysis outcome, this study finds that some of the area of improvement for psychological well-being are traits with insignificant direct effect on occupational stress. For instance, the participants highlighted that ‘Leadership’ (31.38%) trait needs most improvement in comparison with other traits, despite being insignificant in its’ path coefficient towards occupational stress. Besides, ‘Strategic Vision and Decision Making’ is also moderately quoted (11.70%) despite being insignificant trait in path coefficient analysis. However, two traits with significant path coefficient on occupational stress namely ‘Heart’ and ‘Alignment and Congruence’ are ranked second and third respectively after the ‘Leadership’ trait with 16.49% and 15.96% respectively. Other OI traits such as ‘Appetite for Change and Knowledge Deployment’ only demonstrated insignificant direct effect on occupational stress and lowest percentage for improvement in a Tree-Map chart. These findings are in line with the experts’ insights who believe that insignificant traits may require greater emphasis by the management. In light of this outcome, the aspects that require improvement are discussed below.

#### **5.4.2.1 Leadership**

‘Leadership’ trait is ranked as the aspect that need improvement the most in comparison with other OI traits (31.38%), despite its insignificant direct effect on occupational stress. The participants primarily addressed their concerns on lack of transparency in solving conflicts and



problematic employees as well as assertiveness in decision making. Some of the comments are listed below.

**Participant 8:**

“If you were asking regarding my current workplace, I would say leadership plays a big role since I need a clear direction. My boss should help us to achieve a better goal and at least has some courage to say no to unnecessary work assigned to our unit...”

**Participant 46:**

‘...the problematic officer should be dealt with disciplinary action by the management team and not to be transferred out.’

**Participant 133:**

“I would like to see transparency among superiors in performing the important duties.”

This were also in accordance with the experts’ views on the importance of leadership trait such as Expert 9 below who thinks that leaders ought to be more accommodating when it comes to work flexibility as this might give sense of relief to the employees.

**Expert 9:**

“...maybe bosses should be more accommodating. For example, bosses can allow more ‘Work from Home’ options in addition to coming to office. We are talking about digitalization. Then I don’t see why we still coming to office for the sake of completing tasks which are still manual...”

**5.4.2.2 Heart**

‘Heart’ trait is ranked as the second most important aspect (16.49%) that need enhancement in helping the employees to deal with psychological well-being at workplace. This can also be associated with significant direct effect of ‘Heart’ individually and also collectively with other employee-oriented OI traits such as shared fate and performance pressure on occupational stress. Some of the comments from the participants pertaining to ‘Heart’ trait in ensuring employees’ psychological well-being are presented below.

**Participant 8:**

“...employee engagement is the main issue that needs to be improved.”

**Participant 101:**

“...management need to look after the welfare of the employees.”

The inclination of employee-oriented OI traits such as ‘Heart on occupational stress may be contributed by the nature of the traits. After all, employee-oriented OI traits employees’ perceptions, feelings and trusts towards their management, career advancement and welfare. In the similar vein this could potentially serve as job resource to the service providers as well. Also, the ‘Heart’ trait along with other employee-oriented traits can collectively serve as resources in facilitating and supporting employees at workplace. Some of the comments are as follows.

**Expert 2:**

“...the insignificance could possibly be contributed by the nature of the traits which are organizational driven rather than employees driven. Since this is the perception from employees, there are tendency for this trend, particularly for individual driven traits.”

**Expert 9:**

“...maybe it’s all about them. So, it tends to be rated slightly better than when you asked about leaders, supervisors and organisation...”

**Expert 11:**

“...when you are more engaged to your work, you will be automatically driven and willing to do things no matter what. You just feel like wanting to contribute more. These people tend to have inner strength or emotional strength to tackle things. So, they don’t really take it as a burden. They are committed and passionate to get things done though it may appear difficult at times.”

...you can see that as resources too. It is because when you have all these things together collectively, the employees feel the sense of ‘shared values’ and thus the burden is felt like not only his/ hers alone. It becomes a collective burden. They do things together as a team with common purpose. Also, the performance pressure, when they are clear of what are expected and have clear sense about their job etc, it will truly make a difference.”

### **5.4.2.3 Alignment and Congruence**

Organisation-oriented such as ‘Alignment and Congruence’ are represented by 15.96% of the total comments, which was also statistically significant in its’ direct effect on occupational stress. Areas of improvement that were highlighted by the participants and practitioners include fairer distribution of workloads, filling up of vacant posts and right placement of personnel.

#### **Participant 85:**

“...make sure the task distribution is always calibrated within the team.”

#### **Participant 143:**

“...selection of competent staffs based on skills, experience, education and creativity must be taken into account to ensure that their abilities and excellence are utilised...and qualified staff must be placed at the right place.”

As this trait was emphasised by participants as well as being statistically significant on occupational stress, ‘Alignment and Congruence’ could also be perceived as form of job resources among the service providers as it provides supporting platform to ease the task completion. Some of the comments are shared below.

#### **Expert 10:**

“Alignment and Congruence is important to ensure the organization's business operations are in order and at the best level. This is very helpful in ensuring that work-related stress can be avoided and dealt with at an early stage. Alignment and Congruence requires feedback and active participation from citizens to ensure that the organization's business operations can operate effectively and efficiently.”

### **5.4.2.4 Strategic Vision and Decision Making**

The ‘Strategic Vision and Decision Making’ demonstrated 11.70% of the total comments and comprises feedback on making vision and decision making more visible and participative (Participant 18). Though it does not demonstrate significant path coefficient on occupational stress, the message conveyed by the service providers are worth considering in making conclusive recommendations for the public sector (Expert 10).

**Participant 18:**

“...Setting clear and unobtrusive work targets. The goals, vision and mission of the organization must be clear and deeply understood.”

**Expert 10:**

“...Among the aspects that should be emphasised by the management is lack of communication in decision making to ensure that the members of the organization always feel that they belong to the organization.

...strategic vision is one of the most important elements that determine the direction of business and organizational sustainability.”

**5.5 Conclusion**

The qualitative data analysis discussed above has provided informative insights to both cross-examine and extend the findings from quantitative data analysis discussed in Chapter 4. Based on the analysis outcome from 93 participants, this study identifies five important traits that contribute to sustainability of the digital government service quality namely ‘Appetite for Change and Knowledge Deployment’, Psychological Well-being and Occupational Stress, ‘Leadership’, ‘Shared Fate’ and ‘Alignment and Congruence’. In the similar vein, potential traits that may need managerial attention are identified from feedbacks of 153 participants to ensure long term well-being of the service providers. These traits are ‘Leadership’, ‘Heart’, ‘Alignment and Congruence’ and ‘Strategic Vision and Decision Making’

Despite some inconsistencies between quantitative and qualitative data finding, this has certainly offered a rejuvenated insights about the factors that matter the most in addressing the research objectives. With regard to this, the feedback obtained from the participants as well as experts will be incorporated with quantitative data analysis to facilitate the proposal of strategies for the Malaysian public sector.

## **CHAPTER 6: DISCUSSIONS, RECOMMENDATIONS AND CONCLUSION**

This final chapter discusses findings of the study following the analysis outcome discussed in Chapter 4 and 5. In deliberating and interpreting the results, this study incorporates survey data with the insights and feedback obtained from the experts and survey participants. Next, this study outlines possible strategies for the attention of top management to ensure the sustainability of digital service performance in the Malaysian public sector. Considering the significance of the occupational stress element in the proposed model, this study also recommends areas of improvement along with some intervention programs to ensure the psychological well-being of the service providers. This chapter concludes by throwing light on the implications of this study from theoretical, empirical, and practical contributions. Lastly, some limitations and areas of focus for future researchers' consideration are also addressed.

### **6.1 Recapitulations and Discussions**

As postulated in Chapter 1, this study is aimed at addressing four main research objectives. Hence, the discussions below will be steered by four research objectives (RO) to address the focus of this study:

- a) To assess the influence of various OI traits on occupational stress among the service providers.
- b) To assess if occupational stress among the service providers affects digital government service quality.
- c) To examine if occupational stress mediates the relationship between various OI traits and the digital government service quality.
- d) To identify the priority factors of OI traits and occupational stress in sustaining the digital government service quality, based on the importance and performance.

The following discussion is not solely based on quantitative data analysis, but also incorporated qualitative data from participants' feedback and additional insights from the experts and practitioners to support the findings and propose relevant strategies for the intended target group.

### **6.1.1 RO1: To assess the influence of various OI traits on occupational stress among the service providers**

The first objective is aimed at examining how various OI traits would affect occupational stress among digital government service providers. Discussions as to whether RO1 has been met or not are based on the 10 hypotheses proposed in Chapter 2. Generally, at the third-order component level, the proposed Hypothesis 1 (H1) is supported, as OI traits have collectively demonstrated a significant negative direct effect on occupational stress. This is in line with previous studies by Shin and Konrad (2017) as well as Park and Kim (2018) that indicated the favourable impact of high-performing work approaches on employees' psychological well-being via heightened autonomy, skills, and knowledge. At the same time, this finding contradicts with the outcome of past studies by Ogbonnaya (2019) as well as Rodriguez and Choudrie (2021). Narrowing down to the first and second-order levels, only 3 out of 9 hypotheses are supported. This is further discussed in Sections 6.1.1.1 and 6.1.1.2 below.

#### **6.1.1.1 The influence of employee-oriented OI traits on occupational stress among the service providers**

When the direct effect is assessed at the second-order component level, it is interesting to note that only employees driven OI traits have a significant negative direct effect on occupational stress. This signifies that the amplification of employee-oriented traits ('Heart', 'Performance Pressure', and 'Shared Fate') is associated with the lessening effect of work-related stress among service providers. This could imply that employee-oriented OI traits or stressors may collectively serve as job resources to inculcate teamwork towards achieving common goals, as pointed out by the experts during the clarification session. In other words, these traits act as supporting tools in completing work targets, minimising job demands, and improving the personal growth of employees (Bakker and Demerouti, 2017).

While employee-oriented OI traits have collectively shown a significant negative effect on occupational stress, only the 'Heart' trait remains significant when assessment is carried out at the first-order component level. This is in line with previous studies that have supported the notion. For instance, employees who are optimistic about personal development and have better

organisational citizenship behaviour, as well as trust towards management were associated with better abilities to minimise their burnout level (Parker and Decotiis, 1983; Tinline and Crowe, 2010; Yusuf and Ayse Seyzin, 2013; Boxall and Macky, 2014). In relating this outcome with the findings of open-ended responses, the significance of ‘Heart’ trait can be associated with its second highest position in the Tree-Map chart. As the experts put it, this can serve as personal resources since it is reflecting their feelings and desires towards the job and organisation. However, this study has also taken note of the inconsistency of this finding with Parker and Decotiis (1983) study, which indicated that trusts towards management and time spent at work had either positive or non-significant effect on stress.

As for the ‘Shared Fate’ and ‘Performance Pressure’, no significant direct effect was observed on occupational stress. The explanation for unsupported hypotheses is discussed in section 6.1.3.3.

#### **6.1.1.2 The influence of Organisation-oriented OI traits on occupational stress among the service providers**

When the assessment is done on organisation-oriented OI traits collectively, no significant direct effect is demonstrated on occupational stress. This could potentially be associated with a similar outcome from studies by Parker and Decotiis (1983) that exhibit no significant effect of organisational drive for change and innovation on job-related stress. At the same time, this study acknowledges the inconsistencies of this outcome with the findings from past studies about the significant effect of organisation culture and knowledge deployment on job stress and performance (Han et al., 2020; Pak and Kim, 2018; Rodriguez and Chaudary, 2021). Nevertheless, this study finds that one of the traits, namely ‘Alignment and Congruence’ has a significant negative direct effect on occupational stress. ‘Alignment and Congruence’ is represented by work procedures, systems, tools and organisation design that facilitate better interactions within the organisations in getting tasks completed.

With regard to this, the negative significant effect of ‘Alignment and Congruence’ on occupational stress is in line with the previous work of Parker and Decotiis (1983), Boxall and Macky (2014) as well as Gilbert et al. (2017). These studies show that organisational aspects such as organisation design that supports communication openness and also delegation of

power and autonomy to employees had a significant and negative relationship with job stress. This is also supported by the experts who believe that “Alignment and Congruence” is important to ensure the organisation's resources are optimised and business operations are performing at its best level. The significance of ‘Alignment and Congruence’ towards occupational stress is also in line with the open-ended responses, in which 15.96% respondents quoted this aspect as an area of concern in heightening well-being. The rest of the traits such as ‘leadership’ and ‘appetite for change and knowledge deployment’ do not have any significant effect on occupational stress, which are discussed in section 6.1.3.3.

### **6.1.2 RO2: To assess if occupational stress among the service providers affects digital government service quality**

RO2 is aimed at examining the direct effect of occupational stress among the service providers on digital government service quality, which serves as part of the segmentation approach in mediation analysis.

The path coefficient analysis exhibits a significant negative direct effect of occupational stress on digital service quality and thus, Hypothesis 2 (H2) is supported. At the same time, the  $Q^2$  and RMSE values confirm the path model’s predictive relevance with low predictive power. The direct effect of occupational stress on service quality is not just statistically significant but also in accordance with qualitative data findings from participants and experts. Besides, this finding is in line with many other previous studies such as Bakker and Demerouti (2017), Hammond et al. (2019), Krekel et al. (2019), and Ogbonnaya (2019) who emphasised the importance of employees’ psychological well-being in warranting optimal work performance and thus, should not be neglected in pursuing organisational goals. The significance of this direct effect can also be attributed by open-ended responses, as the ‘psychological well-being and occupational stress’ is ranked as the second highest aspect that requires managerial attention in sustaining service quality.

Despite the significance of occupational stress effect on digital service quality, this study agrees with the points stated by experts and previous studies. In essence, the management team may often overlook the soft element of employees’ psychological well-being in attaining organisational success. This confirms the gap addressed in Chapter 1 on little attention to the



role of employee's well-being in understanding its importance to service delivery performance (Guest, 2017; Clarke and Hill, 2012). Considering the importance of occupational stress on service quality, this study places great emphasis on this element, which is discussed in Section 6.2.

### **6.1.3 RO3: To examine if occupational stress mediates the relationship between various OI traits and digital government service quality.**

The purpose of RO3 is to observe the mediation effect of occupational stress on the relationship between various OI traits and digital government service quality. Overall, 4 out of 10 hypotheses are supported. Based on the analysis outcome, the significant indirect effect in Hypothesis 3 (H3) proved that Occupational Stress mediates the relationship between OI traits and digital government service quality. This can possibly be associated with the causal effect established among these variables in the theoretical model by Parker and Decotiis (1983), Samadzadeh (2013), and Han et al. (2020) which were discussed in Chapter 2. The experts are also in agreement with this outcome, as they believe that occupational stress is indeed a missing link between OI traits and service quality, which the public organisation should not neglect or take lightly.

The mediation effect among the variables at the first and second-order levels from organisation and employee-oriented OI traits perspectives are discussed below.

#### **6.1.3.1 Occupational stress mediates the relationship between employee-oriented OI traits and the digital government service quality.**

Similar to the outcome of RO1, only employee-oriented OI traits have a significant indirect effect on digital government service quality. Nevertheless, when the mediation analysis is examined on each of the OI traits, only 'Heart' exhibits a significant indirect effect on service quality via occupational stress. This finding is in accordance with qualitative data from the open-ended responses and experts' insights as well as past studies which indicated the causal effects of elements such as trust towards management, psychological resilience and employees' personal development on job stress and lastly job performance (Parker and Decotiis, 1983; Ogińska-Bulik and Michalska, 2021).

The remaining traits, namely performance pressure' and 'shared fate' are not statistically significant in explaining the mediating effect between OI traits and service quality. This contradicts with the outcome from studies by Elmadağ and Ellinger (2017), Malik et al. (2018) and Koay et al., (2017) which exhibited either some causal or correlation of employee-oriented traits on job stress and work performance. The explanation for unsupported hypotheses is discussed in section 6.1.3.3.

### **6.1.3.2 Occupational stress mediates the relationship between organisation-oriented OI traits and the digital government service quality**

Organisation-oriented OI traits are not statistically significant in the mediation model during the assessment. When the mediation effect is tested at the first-order level, only the 'Alignment and Congruence' trait is significant, while the rest do not. This is in accordance with qualitative data responses as well as past studies by Montgomery et al. (2013) and Karatepe et al. (2018), highlighting the importance of 'Alignment and Congruence' elements such as imbalance work distribution, insufficient manpower and lack of empowerment to employees on job burnout which affects work outcome.

Similar to RO1, other traits denoting leadership, strategic vision and decision-making have not demonstrated any significant effect in this analysis outcome. The explanation for unsupported hypotheses is discussed in section 6.1.3.3.

### **6.1.3.3 Explanations of unsupported hypotheses**

Overall, 9 out of 21 proposed hypotheses in this study are supported. This means the remaining 12 hypotheses are not supported in the assessment. A similar pattern is observed in the analysis outcome for RO1 and RO3, in which organisation-oriented OI traits collectively exhibit an insignificant effect on occupational stress and service quality. As explained earlier, this is due to RO1 which examines the causal effect of OI traits on occupational stress, as part of the whole mediation analysis. When individual OI traits are examined, all hypotheses (RO1 and RO3) involving five traits namely 'leadership', 'strategic vision and decision making', 'appetite for change and knowledge deployment', 'performance pressure', and 'shared fate' are not supported.

The insignificance of employee-driven traits, which are ‘Shared Fate’ and ‘Performance Pressure’ are consistent with the findings by Parker and Decotiis (1983), Boxall and Macky (2014) and Karatepe et al. (2018) who asserted that factors such as recognition and fairness were found to have an insignificant outcome on occupational stress. At the same time, this is also in accordance with the qualitative data outcome as these are the least quoted aspects for improvement with regard to ensuring the service providers’ psychological well-being. Similarly, organisation-driven traits such as ‘leadership’ and ‘appetite for change and knowledge deployment’ do not have any significant effect on occupational stress, which is somewhat similar to the outcome from past studies (Parker and Decotiis, 1983; Boxall and Macky, 2014; Karatepe et al., 2018). These could justify the insignificance of the same traits in the mediation analysis as well.

As the path coefficient and other indicators’ values may give insights into the significance, direction, and predictive relevance of the variables (Hair et al., 2020), this study utilises additional information to propose all-inclusive strategies. Therefore, this study also takes into consideration the perspectives from other analyses such as IPMA (RO4), Tree-Map Chart and experts’ insight in interpreting the results of the study before drawing any conclusions. For instance, some experts believe insignificant effects might not necessarily imply the irrelevance of the traits in sustaining digital service performance. In fact, it could possibly be contributed to the failure of the employees to perceive the importance of these traits due to the absence of new initiatives or lack of emphasis by the management on those areas. This can be supported by the Tree-Map chart generated from open-ended responses particularly for ‘Leadership’ and ‘Strategic vision’ aspects which are highly quoted by the respondents than any other traits. Considering all these arguments, the proposal of strategy is done by incorporating the outcome from all analyses, which is discussed in Sections 6.21 and 6.22.

#### **6.1.4 RO4: To Identify the Impact of OI Traits and Occupational Stress in Sustaining the Digital Government Service Quality, based on the Importance and Performance.**

RO4 is assessed using extended PLS-SEM analysis, intended at examining the total effects of all predecessors, including occupational stress in shaping the target construct. The discussions

below also cross-examine the findings with the feedback obtained from the participants and experts on aspects that entails further improvement in sustaining service quality.

The predecessors with significant total effect, namely ‘Alignment and Congruence’ and ‘Heart’ are in Quadrant 1, indicating equally high performance and importance in sustaining the digital service quality. This finding is further justified by some of the experts who felt that the outcome could be primarily driven by the fact that the service providers are contented by the structure and alignment of the organisation, as well as having the right feeling and trust against the management. However, there are some inconsistencies when the analysis is performed on the feedback from the survey respondents where ‘Alignment and Congruence’ appeared to be the most critical aspects that require improvement in sustaining the digital service quality. This study believes that this outcome provides vital insights into the area of improvement that still requires managerial attention in sustaining digital service performance.

Moving on to Quadrant 2, it is also interesting to note that ‘Occupational Stress’ is perceived as the least-performing predecessor despite its’ highest importance in comparison with other predecessors. This finding is also in accordance with qualitative data analysis from the participants where the aspect pertaining to psychological well-being was mostly mentioned as an area requiring enhancement towards sustainability of digital service quality. The experts were also in agreement with the notion that the finding must have been contributed by less emphasis by the management on the psychological well-being of the employees. With regard to the findings, this is a clear indication of the need for higher managerial attention on this predecessor in sustaining digital service quality.

On the other hand, the position of ‘Appetite for Change and Knowledge Deployment’ and ‘Strategic Vision and Decision Making’ in Quadrant 3 demonstrate both low performance and importance on service quality. As predecessors in Quadrant 3 are categorised as low-priority factors which should not be overly concerned with improving the performance of the target construct (Phadermroda et al., 2019), the finding is cross-examined with the outcome of qualitative data analysis. While the qualitative finding can potentially validate the positioning of ‘Strategic Vision and Decision Making’, the participants felt that ‘Appetite for Change and Knowledge Deployment’ is one of the most critical aspects that requires improvement. This

provides an important hint in understanding the underlying meaning of the positioning of this trait in IPMA.

The predecessors in Quadrant 4: ‘Shared Fate’, ‘Leadership’, and ‘Performance Pressure’ are also the insignificant predecessors with the highest performance but least importance towards digital government service quality. While the position of these predecessors signified that too many resources are allocated to these less important aspects (Phadermroda et al., 2019), further analyses were carried out with feedback from participants. This study finds that ‘Shared Fate’ and ‘Leadership’ are the aspects that received moderate feedback for improvement. Considering the outcome for Quadrants 3 and 4, this study agrees with the insights shared by the experts that low-importance values might not necessarily imply the irrelevance of the predecessors in sustaining digital service performance. Conversely, it could signify the failure of the employees to perceive the importance of these traits due to old practices and lack of emphasis by management on them. Therefore, this study will take into consideration these findings in prioritising traits for the strategy proposal.

## **6.2 Strategies and Recommendations**

Generally, recommendations and strategies for this study are made based on the outcome of the analysis discussed in Chapters 4 and 5 by incorporating a) Mediation analysis; b) IPMA approach and c) Tree-Map chart (Participants’ feedback) and d) Experts’ and practitioners’ insights. While the path coefficient and other statistical values give valuable information on the significance, relevance and direction of the proposed hypotheses (Hair et al., 2020), these details may not be sufficient to draw all-inclusive strategies and conclusions. Most often, non-significant hypotheses are just neglected or rather less elaborated in the proposal of strategies (Visentin et al., 2020). On the other hand, information from the open-ended feedback and experts’ insights offers more details on the possible justification of the outcomes and existing problems in public organisations that need rectification to enhance psychological well-being and eventually sustain service performance.

Hence, this study proposes some potential strategies, as to how OI traits and occupational stress can be incorporated into organisational practices in sustaining the digital government service quality. Next, recommendations on how OI traits can be prioritised to improve the

psychological well-being of the service providers will also be discussed. Lastly, the stress management approach will also be discussed in brief, so it can be incorporated into organisational strategies.

### **6.2.1 Recommendations to Sustain the Digital Government Service Quality**

Based on the outcome of the study, the most important takeaway is a better understanding of the influence of organisational traits on digital government service quality with the intervening effect of occupational stress among the service providers. Prioritisation for the area of improvement is made by considering the outcome from both quantitative and qualitative data analysis (Table 6.1).

Essentially, the mediating effect of Occupational Stress on this relationship is significant when OI traits are measured collectively. When the findings are further analysed with the IPMA approach and Tree-Map chart, occupational stress also turns out to be a critical factor that requires managerial attention to sustain the quality of digital service quality. As such, special intervention is necessary to ensure long-term benefit to the employees who are the core of the organisation's engine of success. Hence, the recommendation to manage the psychological well-being aspects will be discussed separately in Section 6.2.2.

As for OI traits, prioritisation of traits is crucial to identify important traits in sustaining service quality. For instance, employee-oriented OI traits have a significant indirect effect on service quality. Considering this outcome along with IPMA and Tree-Map chart analysis, this study focuses on the 'Shared Fate' trait for the area of improvement. At the same time, the current initiatives being carried out under 'Heart' and 'Performance Pressure' traits should be just emphasised and sustained. Moving on to the organisation-oriented OI traits, they do not exhibit any significant indirect effect on service quality when measured collectively. Nevertheless, this study would focus on 'Alignment and Congruence' for its' significant outcome in both mediation and Tree-Map chart analysis. Also, this study includes 'Appetite for Change and Knowledge Deployment' and 'Leadership' despite the outcome of the mediation and IPMA analysis. These traits are highly quoted by the survey participants for further improvement and could provide important hints that service providers are still anticipating improvement such as

enhancing leadership qualities, providing platforms for continuous engagement and communications with the management and offering more relevant training to service providers.

With regard to the outcome, this study first proposes the area of improvement comprising ‘Alignment and Congruence’, ‘Leadership’, ‘Appetite for Change and Knowledge Deployment’ and ‘Shared Fate’ aspects. At the same time, current organisational practices pertaining to other employee-oriented traits should be continued as it collectively ensures that digital service quality is sustained. The list of recommended strategies to sustain the quality of digital services in the Malaysian public sector is listed in Table 6.2.

It is also important to note that strategies such as the need for stakeholder and citizen engagement in policy making, inculcation of innovative culture and clear vision and mission statement to steer the organisations for success may have already been in place. Though these aspirations are made explicit in the government’s blueprint and strategic plans at the macro perspectives, they need to be cascaded down to organisation level. In the similar vein, some of the proposed ideas particularly on leadership skills, internal practices and culture such as placement of employees, appraisal mechanism and problem-solving approach are not explicitly stated or documented anywhere. Hence, the proposed strategies serve as a guidance in sustaining the organisational performance, whilst enhancing the employees’ well-being, in the public organisations.

**Table 6.1**

*Prioritisation of Area of Improvement for Sustainability of Digital Government Service Quality*

Area of Improvement	Analyses Outcome				Prioritisation for Strategy Proposal
	Mediation Analysis	IPMA*	Tree-Map Chart**	Expert Insights	
<b>Organisation-Oriented OI traits</b>	<b>Insignificant</b>	-	-	Insignificant and low-priority traits do not often signify a lack of importance in sustaining service quality. Conversely, it may imply the call for revisions of old practices and greater emphasis on specific areas such as innovation and the leader's role.	Specific traits only***
Alignment and Congruence	Significant	1	5		Yes
Appetite for Change and Knowledge Deployment	Insignificant	3	1		Yes
Leadership	Insignificant	4	4		Yes
Strategic Vision and Decision Making	Insignificant	3	6		No
<b>Employee-Oriented OI traits</b>	<b>Significant</b>	-	-	Considering the significance of these traits collectively, they should be well aligned and managed to ensure a holistic approach to delivering public services.	Yes
Heart	Significant	1	8		Yes
Performance Pressure	Insignificant	4	7		Yes
Shared Fate	Insignificant	4	3		Yes



Area of Improvement	Analyses Outcome				Prioritisation for Strategy Proposal
	Analyses Outcome	Prioritisation for Strategy Proposal	Area of Improvement	Analyses Outcome	
Psychological Well-being and Occupational Stress	Significant (Direct effect)	2	2	The importance of work-related stress has often been overlooked in pursuance of efficiency. The public sector today faces challenges and demands from stakeholders along with internal pressures. Hence, a stress intervention program is timely and important.	Yes

Note: \* IPMA - Quadrant 1: 'Keep up the good work'; 2: 'Concentrate here'; 3: 'Low priority'; 4: 'Possible Overkill'.

\*\*Tree-Map Chart – Ranking of traits for the area of improvement (from 1 to 8), based on the percentage

\*\*\* Due to the insignificant of this trait collectively, only specific traits are selected after considering analyses outcome of each trait.

**Table 6.2***Recommended Strategies to Sustain the Quality of Digital Services*

No.	Proposed Area of Improvement
<b>1.</b>	<b>Shared Fate</b>
	a) to provide platforms for continuous engagement and communications between the management and employees. Harmonious relationships between leaders and subordinates help reduce the negative effects of job demands and promote effective communication to synergistically work hand-in-hand in accomplishing expected goals.
	b) to create an environment that enables teamwork practices and collaborations to promote greater work engagement and productivity. Hence, it is crucial to match the job context with available resources that can improve communication within the team and facilitate problem-solving.
<b>2.</b>	<b>Alignment and Congruence</b>
	a) to fill in critical vacant posts to ensure continuity of tasks and better workload distribution. When too many posts are left unfilled, it creates an imbalance distribution of workload, leading to emotional exhaustion and thus affecting work performance.
	b) to relook at organisation structure by promoting the alignment of individual energies towards the shared purpose. Hence, careful recruitment, selection and placement of personnel based on their skills and competency will ensure that employees are not pushed in a direction away from accomplishing goals.
<b>3.</b>	<b>Appetite for Change and Knowledge Deployment</b>
	a) to provide more training in enhancing the competency of the service providers at all levels in tandem with the latest technological development and heightened stakeholders' expectations. This will provide a sense of confidence and security that helps the development of self-efficacy among the employees.
	b) to support and encourage the knowledge-sharing culture among the employees at the intra and inter-agencies levels. Important information and well-developed knowledge should be documented and stored in accessible platforms which are made available to every employee. Re-use of strategic knowledge will benefit employees by re-inventing the wheel and saving valuable time in completing tasks.
<b>4.</b>	<b>Leadership</b>
	a) to improve promptness in handling conflicts and issues, particularly on problematic employees. Problematic employees indirectly transfer the unnecessary workload to other co-workers. Heightened workload contributes to mental fatigue and impacts work performance.

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b) to engage with employees in setting work targets and goals as it has more impact when it is mutually accepted by both parties.

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c) leaders are to improve communication of the vision and a clear sense of direction to employees. Leaders need to be visible to employees at all levels.

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## 5. 'Heart' and 'Performance Pressure'

a) to continue emphasising and strengthening efforts on current initiatives to:

- inculcate sense of belonging and shared purposes among the employees.
- foster the spirit and energy of the employees to synergistically drive the engine of the organisation.
- recognise the performance of the employees with a good reward mechanism and feedback process.

Employees who engage in more social exchange with their managers and colleagues were shown to demonstrate an increased level of organisational trust and commitment.

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### 6.2.2 Recommendations to Manage Occupational Stress among the Service Providers

Relevant strategies to manage occupational stress are necessary for ensuring the psychological well-being of the service providers, as this will have an impact on service quality. This is due to the consistent outcome of the importance of occupational stress on service quality obtained from both quantitative and qualitative data as follows:

- a) significant mediation effect of occupational stress on the relationship between OI traits and digital government service quality;
- b) the position of 'Occupational Stress' in Quadrant 2 of the IPMA signifying its high importance with low performance towards the service quality;
- c) ranking of occupational stress as the second highest aspect that requires revisiting to sustain the service quality based on comments from survey participants.

There are many approaches to stress management at the workplace recommended in past studies. This includes customisation based on different stages of preventing stress which were termed 'Primary', 'Secondary' and 'Tertiary' (Cooper and Cartwright, 1997). Newer

approaches suggested looking into stress reduction intervention at the individual and organisational levels by incorporating JD-R perspectives (Bakker and de Vries, 2021). For the purpose of this study, this study takes the approach of proposing a stress intervention program from the individual and organisational levels, as effective interventions will incorporate both of these levels (Bakker and de Vries, 2021).

At the same time, this study acknowledges the existence of dedicated department at either central agencies or ministries level to manage the psychological well-being of the employees. Hence, the study encourages public organisations to engage with agencies such as the Public Service Department or any other agencies which have expertise in the field of psychology management and counselling to facilitate the design of their own programs.

#### **a) Organisational-focused Intervention**

Generally, the organisational-focused intervention involves a top-down approach, targeting the entire organisation or teams which includes job redesign, training and work restructuring (Bakker and Demerouti, 2017). Prioritisation for the area of improvement is made by considering the outcome from both quantitative and qualitative data analysis (Table 6.3). As for the employee-oriented OI traits, this study incorporates all employee-oriented traits in proposing relevant strategies. However, this study puts greater emphasis on the ‘Heart’ trait as it demonstrates a statistically significant effect on job stress and is also ranked as the second highest aspect in the Tree-Map chart for improvement. As for the other two traits namely ‘Performance Pressure’ and ‘Shared Fate’, this study proposes continuous emphasis on the ongoing practices pertaining to these traits. Moving on to organisation-oriented OI traits, this study includes ‘Alignment and Congruence’, due to its significant effect on occupational stress along with equal emphasis by the participants for improvement. Additionally, this study includes an insignificant trait namely ‘Leadership’ which appeared as the aspect requiring the most improvement based on the Tree-Map chart. ‘Strategic Vision and Decision Making’ is included as it is moderately quoted to reflect the feedback obtained from the participants. Considering the outcome of this study, it is best to focus on the most critical OI traits: ‘Leadership’, ‘Alignment and Congruence’, ‘Heart’ and ‘Strategic Vision and Decision Making’ which requires improvement in managing stress in the workplace. The recommended strategies to manage occupational stress are listed in Table 6.4.

**Table 6.3***Prioritisation of Area of Improvement in Managing Occupational Stress among the Service Providers*

Area of Improvement	Analyses Outcome			Prioritisation for Strategy Proposal
	Path Coefficient Analysis	Tree-Map Chart*	Expert Insights	
<b>Organisation-Oriented OI traits</b>	<b>Insignificant</b>	-	The insignificance of some traits on occupational stress implies the need for more emphatic and transparent leaders along with better communication and engagement approaches in setting goals and decision-making.	Specific traits only**
Alignment and Congruence	Significant	3		Yes
Appetite for Change and Knowledge Deployment	Insignificant	5		No
Leadership	Insignificant	1		Yes
Strategic Vision and Decision Making	Insignificant	4		Yes
<b>Employee-Oriented OI traits</b>	<b>Significant</b>	-	The inclination for the significance of these traits on stress is due to the individual nature of the traits, just as work-related stress. These traits can serve as job resources in providing support and resilience in completing tasks.	Yes
Performance Pressure	Insignificant	7		Yes
Shared Fate	Insignificant	6		Yes
Heart	Significant	2		Yes

Note: \* *Tree-Map Chart – Ranking of traits for the area of improvement (from 1 to 7), based on the percentage*

\*\**Due to insignificant of this trait collectively, only specific traits are selected after considering analyses outcome of each trait.*

**Table 6.4**

*Proposed Strategies for Managing Occupational Stress at the Organisational Level*

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<b>No. Proposed Area of Improvement</b>
<b>1. Leadership</b>
a) to exhibit integrity via more transparent communication and better alignment between words and actions, while carrying out tasks and handling issues at the workplace. This will provide a sense of stability, confidence, and perception of fairness in their leaders which helps in keeping the employees engaged and giving out their best at work.
b) to demonstrate ‘health-promoting’ behaviours at all leadership levels by providing more job resources such as support, feedback, and opportunities to employees. Heightened health awareness among leaders has been linked to better employees’ well-being and engagement at the workplace.
<b>Alignment and Congruence</b>
<b>2.</b> Fairer distribution of workloads, filling up of vacant posts and right placement of personnel. Other strategies proposed under Table 6.2 can be incorporated.
<b>3. Heart</b>
To improve employee engagement and welfare of the employees to regain their trust in the management. This should be initiated with leaders at all levels by recognising the individual needs and welfare of the employees under their direct supervision. One-on-one coaching and mentoring have been proven to facilitate employees in managing job demands and strains.
<b>4. Strategic Vision and Decision Making</b>
to emphasise having continuous engagement with employees and stakeholders to improve the visibility of organisational vision. Additionally, continuous reviews of current targets and practices should be in place to keep up with the challenges and stay relevant.
<b>5. Shared Fate and Performance Pressure</b>
to continue emphasising any ongoing current initiatives to: <ul style="list-style-type: none"><li>- foster a sense of belonging and partnership with the organisation and management.</li><li>- encourage teamwork practices in helping and supporting one another in getting the task done.</li><li>- recognise and appreciate employees’ contributions via rewards etc.</li></ul>

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## **b) Individual-focused Intervention**

As most of the strategies proposed above require managerial intervention to an extent, individual-focused intervention comprises bottom-up initiatives which target an individual employee (Bakker and Demerouti, 2017). The need to have a stress management intervention was highlighted by both experts and participants, who felt that a formal and structured program is required in dealing with work-related stress among employees. Hence, this study suggests an individual-focused intervention that helps employees with coping skills, educational intervention and relaxation techniques (West et al., 2016; Bakker and de Vries, 2021). With regard to this, the following approaches are proposed:

- a) training and educational activities to increase awareness and improve the stress management skills of the leaders and employees. As each employee reacts differently to organisational stress, it is imperative to introduce them to relaxation techniques, time management skills and cognitive coping skills in managing stress.
- b) job crafting training programs that help employees proactively fine-tune their tasks, relationships, and cognitions to make their work less stressful and more meaningful. It is believed that job crafting has a positive impact on heightening individual employees' personal resources such as hope, resilience, self-efficacy, and optimism (Vogt et al., 2016).

## **6.3 Strengths, Limitations and Future Recommendations**

### **6.3.1 The Use of Cross-Sectional Data**

A cross-sectional research design was employed after taking into consideration time constraints and access to respondents of this study. This approach has been argued to exhibit possible causal mechanisms when the research model is built upon a well-founded theory (Shrout, 2011). Thus, this study believes that some causal effect has been demonstrated, given the proposed model is developed based on the Organisational Model of Stress (Parker and Decotiis, 1983) and JD-R Theory (Bakker and Demerouti, 2017). Besides, the respondents' perception towards aspects such as leadership, organisation culture, monitoring of service performance

and work-related stress is not something that can demonstrate substantial changes within a short period that this study can accommodate.

Notwithstanding, the researcher is aware that longitudinal studies would be the best approach to serve the need of testing the causal process of a mediation model that unfolds over time (MacKinnon et al., 2012). Therefore, future researchers may consider using a longitudinal research design, preferably with panel data that allows the comparison of different causal flows to enhance the validity of their findings (Aguinis et al., 2016).

### **6.3.2 Selection of OI Traits Scale**

The OI Traits construct of this study utilised items from OI Profile (Albrecht, 2002) which was also incorporated with some items from Falletta (2008) and UN (2020). The items were scrutinised via a series of content validity with the experts and practitioners, pre-testing with the actual respondents, and pilot testing to reflect the public sector context. While the items could have potentially reflected the practice and culture of the Malaysian public sector, there might be some inconsistencies in terms of its practicality across public service organisations outside Malaysia. Hence, this scale needs to be tested in public service organisations outside Malaysia to examine its usability in various organisational settings and cultural backgrounds.

### **6.3.3 Research Methodology**

This study adopted a triangulation design approach to answer the proposed research questions and objectives. Generally, this study has sufficiently addressed all the research questions and objectives using quantitative data collected from 394 participants which were then analysed using the PLS-SEM approach. Following this, the study also utilised feedback obtained from open-ended questions in the same survey which were then analysed using NVivo software. This approach has certainly provided additional insights that can be used to validate and support the quantitative survey findings, prior to recommending possible strategies for the Malaysian public sector.

At the same time, there were also some inconsistencies between qualitative and quantitative findings in terms of prioritisation of OI traits in sustaining the service quality. In this sense,



experts' and practitioners' insights were used to clarify the findings. Though the qualitative data are only represented by 23.10 to 39.09 percent of the entire survey participants, the feedback provided valuable findings. Therefore, future studies may consider employing a full-scale qualitative study to cross-examine the findings of quantitative data. Alternatively, the researcher can also use a mixed method approach such as explanatory sequential design to gain a better understanding, particularly in justifying the nature of OI traits as job demands or resources from both quantitative and qualitative perspectives.

#### **6.3.4 Scope of the Study**

This study is mainly aimed at examining the relationship among the variables from multi-dimensional higher-order OI traits perspectives. Given the complexity of higher-order models, this study did not emphasise making any comparisons between schemes (technology, administration, etc.), and length of service (long or short), workgroup (professional, supporting, etc.) or even gender (male and female). Future researchers can incorporate these elements into their study, as it may provide a new and interesting avenue in understanding how occupational stress mediates the relationship between OI traits and service quality among these different classifications of service providers. Besides, this could also give better insights into understanding how OI traits can behave either as job resources or demands in the given circumstances (Bakker and Demerouti, 2017).

#### **6.4 Theoretical Contribution**

As postulated in Chapter 1, the research model is conceptualised by the Organisational Model of Stress (Parker and Decotiis, 1983), and incorporated the JD-R Theory (Bakker and Demerouti, 2011) and Public Service-Dominant Logic (Osborne et al., 2012) to reflect the context of this study. In light of this conception, a research model, with occupational stress acting as a mediator between various OI traits and digital government service quality, is proposed as a comprehensive framework to sustain the quality of public service delivery (Ramakrishnan et al., 2022). There are three main theoretical contributions that this study has potentially made which are further discussed below.

### 6.4.1 JD-R Theory

Firstly, this study intended to examine the nature of the stressors' component in the proposed model from the lens of JD-R Theory. Essentially, the stressors in this study are represented by various OI traits which are then classified by either job demands or job resources. In classifying these stressors or traits, the direction of the path coefficient between these variables is used as one of the bases. This study finds that two OI traits with significant direct effects on occupational stress namely 'Heart' and 'Alignment and Congruence' exhibit a negative path coefficient on occupational stress. This signifies that the amplification of these practices in the public organisation may serve as a form of resource to minimise occupational stress among the service providers.

This notion can be supported by past studies indicating that communication openness, autonomy and empowerment were shown to negatively correlate with job-related stress (Parker and Decotiis, 1983; Karatepe et al., 2018). Besides, employees' sense of emotional attachment to the organisation was said to minimise the unfavourable effects of work intensity on their well-being (Ogbonnaya, 2019). In other words, this study would assume that these traits may serve as job resources since they serve as supporting mechanisms in accomplishing their tasks and thus help to mitigate the harmful effects of work-related stress (Bakker and Demerouti, 2014).

In addition to that, this study also takes note of the significant negative direct effect of employee-oriented OI traits which consists of 'Shared Fate' and 'Performance Pressure' along with 'Heart' on occupational stress. Hence, this study has an impression that when all these traits are well aligned and managed, they can collectively serve as job resources to the service providers in performing their tasks constructively. Further insights from experts and practitioners have supported this notion too. Clear roles and target setting as well as strong teamwork and a sense of partnership with management would serve as supporting or motivational tools for their psychological well-being in completing their tasks efficiently (Wood et al., 2019; Ogbonnaya, 2019).

Nevertheless, the theory is flexible, as certain roles or functions and work settings can have varying outcomes on psychological well-being (Bakker and Demerouti, 2017). Therefore, this

study proposes some supporting ideas to identify and classify OI traits as either job demands or resources in Section 6.3.4.

#### **6.4.2 Public Service-Dominant Logic and Organisational Model of Stress**

This study extends the traditional organisational stressors in Organisational Model of Stress to newer elements which are represented by seven OI traits. It depicts the importance of employee participative involvement and stakeholder engagement in the decision-making process along with utilisation of ICT tools in the work process. Next, this study extends the scope of ‘second level outcome’ in the Organisational Model of Stress from individual to organisational level job performance in public organisations utilising digital service platforms. By employing the Public Service-Dominant Logic (Osborne, 2006), this study takes an approach to assessing digital government service quality by emphasising an outward-focused approach, co-production between the service users and producers as well as operations management within public organisations to deliver efficient and effective service delivery. Thirdly, this study has also added value to the Public Service Dominant Logic with the inclusion of ‘occupational stress’ to examine if the psychological well-being factor can be regarded as a contributing factor to the performance of service delivery in the public sector. Occupational stress demonstrates a significant direct effect on digital service quality, signifying the validity of the proposed relationship.

#### **6.4.3 Literature on Service Quality**

This study broadens the horizon of the digital service quality spectrum from a less emphasised perspective of service providers, as highlighted by Arias and Macada (2018) as well as Stiakakis and Georgiadis (2009). Specifically, the study conceptualised the construct, as to how elements such as efficiency, user support and transparency of digital services can be sustained via continuous assessment and monitoring by the service providers. Besides, the study demonstrates that digital service quality is also influenced by a determinant beyond technological aspects, which is occupational stress. The significant role of occupational stress on the influence of various OI traits towards digital government service quality has helped to address the gap asserted by Clarke and Hill (2012) and Guest (2017). Lastly, this study also proved that the digital government service delivery model can adopt and adapt the private sector context in terms of the contributing factors to service quality and the need for efficient

and secure digital platforms. At the same time, this study recognises the distinct elements of digital government service delivery model including transparency, openness as well as participation and engagement (Karkin and Janssen, 2014; Lee-Geiller and Lee, 2019; UN, 2020).

## **6.5 Methodological Contribution**

In terms of methodological contribution, the triangulation method employed in this study has facilitated the interpretation of analysis outcomes and thus the proposal of strategies for public sector practitioners. Besides, this study extends the existing model that examined the linkages of the constructs discreetly from either causal effect or relationship spectrum to an integrated all-inclusive mediation model. Additionally, this study made a significant contribution to validating the multi-dimensional OI traits instrument by employing a disjoint two-stage analysis approach to measure the construct. The entire model was tested by employing rigorous validity and reliability testing using PLS-SEM.

This study also extends the scope of the population covered in past studies on organisational intelligence areas. As such, this study focuses on the Malaysian public sector context, representing the digitalisation of services in developing countries of ASEAN which is still lacking and worth exploring.

## **6.6 Practical Contribution**

In terms of practical contribution, this study has proposed relevant strategies that require managerial attention to sustain the quality of digital government service delivery in the Malaysian public sector. The study incorporated the outcome from mediation analysis, IPMA, Tree-Map chart and experts' insights to recommend strategies by focusing on critical predecessors on service quality. For instance, employee-oriented OI traits have a significant indirect effect on digital service quality in comparison with organisation-oriented OI traits. Hence, this study suggests that employee-oriented OI traits (Heart, Performance Pressure and Performance Pressure) need to be well aligned and managed, so they can collectively yield desirable outcomes on psychological well-being and support the service providers in performing their tasks constructively. Additionally, this study also recognises the significance

of the occupational stress factor in addressing the missing link between organisational intelligence and digital government service quality. Therefore, all-inclusive intervention strategies are proposed at both individual and organisational levels to help the top management of public sector officials in enhancing the psychological well-being of service providers. A healthy organisational ecosystem would indeed be advantageous to both employees and organisation, in promoting employees' well-being and thus enhancing public service' productivity and performance.

## **6.7 Conclusion**

The central idea of this study is to understand the mediating role of occupational stress among service providers in explaining the link between OI traits and digital government service quality. Since OI traits are a multi-dimensional third-order construct, this study examined it from the perspectives of a) each OI trait (first order); b) employee and organisation-oriented OI traits (second order); and c) OI traits collectively (third order). It is also important to note that this study has taken the standpoint of emphasising the sustainability of the digital government service quality in the long run as opposed to improvement of service performance per se. As explained in Chapter 1, this standpoint is taken after assessing Malaysia's digital government service performance over the years.

Following this, the study outlines four research objectives and 21 hypotheses to address the core idea of this study. Firstly, this study examines how various OI traits had an impact on occupational stress, followed by its' effect on digital government service quality. Next, the mediating effect of occupational stress on the relationship between OI traits and service quality is assessed. Lastly, this study also identifies the role of predecessors (OI traits and occupational stress) in sustaining digital service quality by looking at their importance and performance values. The quantitative data analysis was performed by using a partial least square structural equation modeling approach with 394 survey data. In addition to that, this study also utilises the survey participants' open-ended feedback and experts' insights to interpret and cross-examine the outcome from quantitative data which facilitates the proposal of strategies.

In principle, this study has addressed all the research objectives, conclusively. OI traits collectively have a significant negative direct effect on occupational stress and an indirect

effect on digital service quality. At the second-order level, only the employee-oriented OI traits exhibit both significant direct and indirect effects in all the hypotheses tested. Narrowing down to the third-order construct level, only two OI traits, namely 'Alignment and Congruence' and 'Heart' has demonstrated a significant effect on all the tested hypotheses. Additionally, occupational stress has also demonstrated significant negative direct digital service quality. It is also interesting to note that IPMA analysis shows that 'occupational stress' is the only predecessor perceived as highly important yet least performing one in sustaining the quality of digital government service.

In light of the findings, this study concludes that occupational stress mediates the relationship between OI traits and digital government service quality. As such, some strategies are proposed to serve as guidance for the Malaysian public sector in sustaining the digital government service quality, by incorporating both quantitative data with feedback from survey participants and insights from experts and practitioners. As a result, this study proposes areas that require greater attention to sustain digital government service quality, particularly 'Appetite for Change and Knowledge Deployment', 'Alignment and Congruence', 'Leadership' and 'Shared Fate'. The current practices under 'Heart' and 'Performance Pressure' traits are to be continuously emphasised. At the same time, this study also considers the significance of the 'occupational stress' factor in the proposed model. Next, some practical recommendations are presented in the area of 'Leadership', 'Alignment and Congruence', 'Strategic Vision and Decision Making', along with 'Heart' while the emphasis on ongoing practices under other employee-oriented traits is to be continued. Following this, the study proposes stress management interventions at the individual level in ensuring the psychological well-being of the service providers. Finally, this study also highlights limitations and areas for future research to consider. This chapter is concluded by addressing the theoretical, methodological and practical implications of this study.

## REFERENCES

- Abolhasani, R.S., & Pargar, F. (2020). The Relationship between organizational intelligence, quality of work life and job motivation with job burnout in Fatemeh Al-Zahra Hospital staff in Naja Ahvaz. *Archives of Pharmacy Practice*, 11(1), pp. 133-139.
- Ackoff, R.L. (1989). From data to wisdom. *Journal of Applied Systems Analysis*, 16, pp. 3–9.
- Agostino, D., Arnaboldi, M. and Lema, M.D. (2020). New development: COVID-19 as an accelerator of digital transformation in public service delivery. *Public Money & Management*, 41(1), pp. 1–4. doi:10.1080/09540962.2020.1764206.
- Aguinis, H., Edwards, J. R. and Bradley, K. J. (2016). Improving our understanding of moderation and mediation in strategic management research. *Organizational Research Methods*, 20(4), pp. 665–685. doi: 10.1177/1094428115627498.
- Ahangari, R.Q., & Hallajian, E. (2015). Survey on effects of organizational intelligence on organizational trust is based on Albrecht Model (Case study on Ghaemshahr's Municipal). *Global Advanced Research Journal of Educational Research and Review*, 4(1), 006-013.
- Ajzen, I. & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. Upper Saddle River, N.J.: Prentice-Hall.
- Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. Berlin: Springer-Verlag.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Process*, 50 (2), pp. 179-211. doi:10.1016/0749-5978(91)90020-T.
- Ajzen, I. (2001). Nature and operations of attitudes. *Annual Review of Psychology*, 52, pp. 27-58. doi:10.1146/annurev.psych.52.1.27.
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32(4), pp. 665-683. doi: 10.1111/j.1559-1816.2002.tb00236.x.
- Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology and Health*, 26(9), pp. 1113-1127. doi: 10.1080/08870446.2011.613995.
- Ajzen, I., & Driver, B. L. (1992). Application of the theory of planned behaviour to leisure choice. *Journal of Leisure Research*, pp. 185-204. doi: 10.1080/00222216.1992.11969889.
- Ajzen, I., & Madden, T. J. (1986). Prediction of goal directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology*, 22(5), pp. 453-474. doi:10.1016/0022-1031(86)90045-4.

- Aktera, S., Bandarab, R., Hanib, U., Wambac, S.F., Foropond, C. & Papadopoulose, T. (2019). Analytics-based decision-making for service systems: A qualitative study and agenda for future research. *International Journal of Information Management*, 48, pp. 85–95. doi: 10.1016/j.ijinfomgt.2019.01.020.
- Alanezi, M.A., Kamil, A., & Basri, S. (2010). A proposed instrument dimension for measuring e-government service quality. *International Journal of U- & E-Service, Science & Technology*, 3(4), pp.1-18. DOI: 10.1109/ICOS.2011.6079243.
- Albar, Mooduto, H., Yuhefizar, Napitupulu, D. and Hidayat, R. (2018). Is E-Government Service Quality (e-GovQual) Model Still Relevant? A Study in the context of Indonesian Government. *2018 8th International Conference on Computer Science and Information Technology (CSIT)*. doi:10.1109/ csit.2018.8486357.
- Albrecht, K. (2002, 2003). *The power of minds at work : organizational intelligence in action*. New York: Amacom.
- Alcaide-Muñoz, L., & Bolívar, M.P.R. (2015). Understanding e-government Research: A perspective from the information and library science field of knowledge. *Internet Research*, 25 (4), pp. 633-673. doi: 10.1108/IntR-12-2013-0259.
- Al-Kasasbeh, M., Al-Kasasbeh, S.A., & Al-Faouri, A. (2016). Smart organization characteristics and its impact on social and environmental performance: An empirical study on Jordan Phosphate Mines Company. *International Journal of Biometrics*, 11 (8), pp. 106-115. doi: 10.5539/ijbm.v11n8p106.
- Allen, P., Bennett, K. and Brody Heritage (2014). *SPSS statistics version 22 : a practical guide*. South Melbourne, Vic.: Cengage Learning.
- Ancarani, A. (2005). Towards quality e-Service in the public sector: The evolution of web sites in the local public service sector. *Managing Service Quality*, 15(1), pp. 6-23. doi: 10.1108/09604520510575236.
- Angur, M.G., Nataraajan, R., & Jahera, J.S. Jr (1999). Service quality in the banking industry: an assessment in a developing economy. *International Journal of Bank Marketing*, 17(3), pp. 116–123. doi: 10.1108/02652329910269211.
- Appelbaum, E. (2000). *Manufacturing advantage : why high-performance work systems pay off*. Ithaca: Cornell University Press.
- Archenaa, J., & Anita, E. A. M. (2015). A survey of big data analytics in healthcare and government. *Procedia Computer Science*, 50, pp. 408–413. doi:10.1016/j.procs.2015.04.021.
- Argyris, C. (1997). Learning and teaching: A theory of action perspective. *Journal of Management Education*, 21(1), pp. 9–26. doi:10.1177/ 105256299702100102.
- Argyris, C. and Schön, D.A. (1978). *Organizational Learning : A Theory of Action Perspective*. Reading, Mass.: Addison-Wesley.



- Arias, M.I. and Maçada, A.C.G. (2018). Digital Government for E-Government Service Quality. *Proceedings of the 11th International Conference on Theory and Practice of Electronic Governance - ICEGOV '18*. doi:10.1145/3209415.3209422.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40, pp. 471-499. doi: 10.1348/014466601164939.
- Arnault, D. Saint, & Fetters, M. D. (2011). ROI funding for mixed methods research: lessons learned from the “mixed-method analysis of Japanese depression” project. *Journal of Mixed Methods Research*, 5(4), pp. 309–329. doi:10.1177/1558689811416481.
- Arnold, J., Robertson, I.T. and Cooper, C.L. (1995). *Work psychology : understanding human behaviour in the workplace*. London: Pitman Publ.
- Astvik, W., & Melin, M. (2013). Coping with the imbalance between job demands and resources: A study of different coping patterns and implications for health and quality in human service work. *Journal of Social Work*, 13(4), pp. 337–360. doi:10.1177/1468017311434682.
- Auer, C., & Petrovic, O. (2004). E-measurement: an integrated methodology for measuring the performance of e-services. *Int. J. Electronic Business*, 2(6), pp. 583-602. doi: 10.1504/IJEB.2004.006127.
- Awang, Z. (2012). *Research methodology and data analysis* (2nd ed.). Kuala Lumpur: UiTM Press.
- Ayuso, S., Rodri'guez, M.A., Garcí'a-Castro, R. & Arin'õ, M.A. (2011). Does stakeholder engagement promote sustainable innovation orientation? *Industrial Management & Data Systems*, 111(9), pp. 399-1417. doi:10.1108/02635571111182764.
- Azma, F., Mostafapour, M. ali & Rezaei, H. (2012). The application of information technology and its relationship with organizational intelligence. *Procedia Technology*, 1(C), pp. 94–97. doi:10.1016/j.protcy.2012.02.018.
- Bahkia, A.S., Awang, Z., Afthanorhan, A., Ghazali, P.L. and Foziah, H. (2019). Exploratory factor analysis on occupational stress in context of Malaysian sewerage operations. *The 4th Innovation and Analytics Conference & Exhibition (IACE 2019)*. doi:10.1063/1.5121111.
- Bahkia, A.S., Awang, Z., Rahlin. N.A., & Zulkifli, A.R. (2020). The importance of supportive leadership in the sewerage operation industry: A case of Indahwater Konsortium Private (IWK). *Humanities & Social Science Reviews*, 8(3), pp. 149-162. doi:10.18510/hssr.2020.8317.
- Bahrami, M. A., Kiani, M. M., Montazeralfaraj, R., Zadeh, H. F., & Zadeh, M. M. (2016). The mediating role of organizational learning in the relationship of organizational intelligence

- and organizational agility. *Osong Public Health and Research Perspectives*, 7(3), pp. 190–196. doi:10.1016/j.phrp.2016.04.007.
- Bahri, S., Fauzi, A. and Ahmad, N.S. (2020). A communication overload scale for use with mobile instant messaging in work management. *Digital Business*, 1(1), pp. 1-10. doi:10.1016/j.digbus.2021.100003.
- Bakker, A. B. & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, 22(3), pp. 273–285. doi:10.1037/ocp0000056.
- Bakker, A. B. (2011). An evidence-based model of work engagement. *Current Directions in Psychological Science*, 20, pp. 265–269. doi:10.1177/0963721411414534.
- Bakker, A. B., & Costa, P. (2014). Chronic job burnout and daily functioning: A theoretical analysis. *Burnout Research*, 1, pp. 112–119. doi. org/10.1016/j.burn.2014.04.003.
- Bakker, A. B., & Sanz-Vergel, A. I. (2013). Weekly work engagement and flourishing: The role of hindrance and challenge demands. *Journal of Vocational Behavior*, 83, pp. 397–409. doi:10.1016/j.jvb.2013.06.008.
- Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology*, 99(2), 274–84. doi: 0.1037/0022-0663.99.2.274.
- Bakker, A.B. and de Vries, J.D. (2021). Job Demands–Resources theory and self-regulation: new explanations and remedies for job burnout. *Anxiety, Stress, & Coping*, 34(1), pp.1–21. doi:10.1080/10615806.2020.1797695.
- Bakker, A.B. and Demerouti, E. (2014). Job demands-resources theory. In: P.Y. Chen and C.L. Cooper, eds., *Wellbeing: A complete reference guide. Work and wellbeing*. United Kingdom: Wiley Blackwell, pp.37–64.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, N.J. Prentice-Hall.
- Bani-Melhem, S., Zeffane, R., & Albaity, M. (2018). Determinants of employees’ innovative behavior. *International Journal of Contemporary Hospitality Management*, 30(3), pp. 1601–1620. doi:10.1108/IJCHM-02-2017-0079.
- Barclay, D., Higgins, C., & Thompson, R. (1995). The Partial Least Squares (PLS) approach to causal modelling: Personal computer adoption and use as an illustration. *Technology Studies, Special Issue on Research Methodology*, 2 (2), pp. 285-309.
- Baharon, B.M., Yap, C., Ashar, S.F., Hanafi, M.H., & Hazmi, M.R. (2017). Citizen Satisfaction with E-Government Portals in Malaysia. *The International Journal of Business and Information*, 12, pp. 289-309. doi: 10.6702/ijbi.2017.12.3.3.

- Barnes, S. J., & Vidgen, R. T. (2003). Interactive e-government: Evaluating the web site of the UK Inland Revenue. *Journal of Electronic Commerce in Organisations*, 2, pp. 42–63. doi: 10.4018/jeco.2004010104.
- Barnes, S. J., & Vidgen, R. T. (2006). Data triangulation and web quality metrics: A case study in e-government. *Information & Management*, 43, pp. 767–777. doi: 10.1016/j.im.2006.06.001.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variables distinction in social psychological research: Conceptual, strategic and statistical consideration. *Journal of Personality and Social Psychology*, 51, pp. 1173-1182.
- Bauer, H.H., Hammerschmidt, M., & Falk, T. (2005). Measuring the quality of e-banking portals. *International Journal of Bank Marketing*, 23(2), pp. 153-175. doi: 0.1108/02652320510584395.
- Bazrkar, A. & Hajimohammadi, M. (2021). The investigation of the mediating role of innovation and organizational intelligence on the relationship between knowledge management and financial performance of the organizations active in the e-banking industry. *Independent Journal of Management & Production*, 12 (1), pp. 54-79. doi:10.14807/ijmp.v12i1.1267.
- Becker, J.M., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLSSEM: Guidelines for using reflective-formative type models. *Long Range Planning*, 45(5–6), pp. 359–394. doi:10.1016/j.lrp.2012.10.001.
- Beehr, T. A. (1998). Research on occupational stress: An unfinished enterprise. *Personnel Psychology*, 51, pp. 835–844. doi: 10.1111/j.1744-6570.1998.tb00741.x.
- Beer S. (1981). *Brain of the firm* (2nd ed.). USA: Wiley & Sons.
- Beer, S. (1959). *Cybernetics and management*. London: English University Press.
- Benitez, M., Leon-Perez, J. M., Orgambidez, A., & Medina, F. J. (2021). Interpersonal Conflicts in the Unit Impact the Service Quality Rated by Customers: The Mediating Role of Work-Unit Well-Being. *International Journal of Environmental Research and Public Health*, 18(15), pp. 8137. doi:10.3390/ijerph18158137.
- Benlian, A., Koufaris, M. and Hess, T. (2011). Service Quality in Software-as-a-Service: Developing the SaaS-Qual Measure and Examining Its Role in Usage Continuance. *Journal of Management Information Systems*, 28(3), pp.85–126. doi:10.2753/mis0742-1222280303.
- Benner, P., Benner, P.E. & Wrubel, J. (1989). *The Primacy of Caring*. Pearson.
- Bennis, W. G., & Townsend, R. (1989). *On becoming a leader* (Vol. 36). London: Addison-Wesley.

- Berger, P. L. and Luckmann, T. (1967). *The social construction of reality*. New York: Anchor Books.
- Beyza, S. & Evenstad, N. (2018). The virtuous circle of ephemeralization and the vicious circle of stress: A systemic perspective on ICT worker burnout. *Futures*, 103, pp. 61-72. doi:10.1016/j.futures.2018.03.013
- Bhaskar, R. (1978). *A realist theory of science (2nd ed.)*. Sussex: Harvester Press.
- Bhuiyan, S. H. (2011). Modernizing Bangladesh public administration through e-governance: Benefits and challenges. *Government Information Quarterly*, 28(1), pp. 54-65. doi: 10.1016/j.giq.2010.04.006.
- Biddle, S. J., & Nigg, C. R. (2000). Theories of exercise behavior. *International Journal of Sport Psychology*, 31, pp. 290-304.
- Bites, S.S. (2012). *Rom Harré on What is Social Science?* [online] Social Science Space. Available at: <https://www.socialsciencespace.com/2012/05/rom-harre-on-what-is-social-science> [Accessed 7 Dec. 2022].
- Bitner, M. J., & Hubbert, A. R. (1994). Encounter satisfaction versus overall satisfaction versus quality. In: R. Roland T & L.O. Richard, eds., *Service quality: New directions in theory and practice*. London: Sage. pp. 72–94.
- Blanchard, K. H. (2010). *Leading at a higher level: Blanchard on leadership and creating high performing organizations*. Upper Saddle River, N.J. :FT Press.
- Bland, J. M. (1999), A New Approach to Management of Stress, *Journal of Industrial and Commercial Training*, 31(2), pp. 44-48.
- Blau, P. M. (1964). *Exchange and power in social life*. New York: John Wiley & Sons.
- Blut, M. (2016). E-service quality: development of a hierarchical model. *Journal of Retailing*, 92(4), pp. 500–517. doi:10.1016/j.jretai.2016.09.002.
- Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best Practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health*, 6, pp. 149. doi:10.3389/fpubh.2018.00149.
- Bogdan, R. and Biklen, S.K. (1992). *Qualitative Research for Education: An Introduction to Theory and Methods (2nd ed)*. Boston: Allyn and Bacon.
- Bollen, K.A., & Stine, R. (1990). Direct and indirect effects: classical and bootstrap estimates of variability. *Sociological Methodology*, 20(1), pp. 115–140.

- Bolton, R.N., & Drew, J.H. (1991). A multistage model of customers' assessments of service quality and value, *Journal of Consumer Research*, 17 (4). pp. 375–384.
- Boshoff, C. & Mels, G. (1995). *European Journal of Marketing*, 29 (2), pp. 23-42.
- Bovaird, T. (2005). Public governance: Balancing stakeholder power in a network society. *International Review of Administrative Sciences*, 71(2), pp. 217-228. doi: 10.1177/0020852305053881.
- Bougie, R and. Sekaran, U. (2019). *Research Methods for Business: A Skill-Building Approach* (8<sup>th</sup> ed.). New Jersey: John Wiley & Sons Ltd.
- Bovaird, T., & Löffler, E. (2003). Evaluating the quality of public governance: Indicators, models and methodologies. *International Review of Administrative Sciences*, 69, pp. 313-328. doi: 10.1177/0020852303693002.
- Boxall, P., & Macky, K. (2014). High-involvement work processes, work intensification and employee well-being. *Work, Employment and Society*, 28(6), pp. 963–984. doi:10.1177/0950017013512714.
- Boyer, K., Hallowell, R., & Roth, A. (2002), “e-Services: Operating strategy: a case study and a method for analyzing operational benefits. *Journal of Operations Management*, 20 (2), pp. 75-88. doi:10.1016/S0272-6963(01)00093-6.
- Boyne, G,A. (2002). Public and private management - What’s the difference? *Journal of Management Studies*, 39(1), pp. 97-122. doi:10.1111/1467-6486.00284
- Brebner, M., & Parkinson, M. (2006). The accessibility of New Zealand public library web sites to people who are blind or vision impaired. In: *LIANZA Conference 2006*.
- Brewer, G. (2006). All measures of performance are subjective: More evidence on US federal agencies. In: G. Boyne, K. Meier, L. O’Toole, Jr., & R. Walker, eds., *Public Service Performance: Perspectives on Measurement and Management*. United Kingdom: Cambridge University Press. pp. 35-54.
- Bratianu, C. (2009). The frontier of linearity in the intellectual capital metaphor. *The Electronic Journal of Knowledge Management*, 7(4), pp. 415-424.
- Broderick, A.J., & Vachirapornpuk, S. (2002). Service quality in internet banking: The importance of customer role. *Marketing Intelligence & Planning*, 20(6), pp. 327-335. doi: 10.1108/02634500210445383.
- Brown, M. M., & Brudney, J. L. (2003). Learning organizations in the public sector? A study of police agencies employing information and technology to advance knowledge. *Public Administration Review*, 63(1), pp. 30–43. doi:10.1111/1540-6210.00262.
- Bryman, A. (2012). *Social research methods*. United Kingdom: Oxford University Press.

- Bryson, A., Forth, J., & Stokes, L. (2017). Does employees' subjective wellbeing affect workplace performance? *Human Relations*, 70(8), pp. 1017-1037.
- Buchwald, P., & Hobfoll, S. E. (2004). Burnout aus ressourcen theoretischer perspektive psychologie. *Erziehung und Unterricht*, 51(4), pp. 247–57.
- Buhalis, D., Harwood, T., Bogicevic, V., Viglia, G., Beldona, S., & Hofacker, C. (2019). Technological disruptions in services: lessons from tourism and hospitality. *Journal of Service Management*, 30(4), pp. 484-506. doi:10.1108/JOSM-12-2018-0398.
- Burke, W.W., & Litwin, G.H. (1992). A Causal Model of Organizational Performance and Change. *Journal of Management*, 18 (3), pp. 523-545.
- Cain, M. K., Zhang, Z., & Yuan, K. H. (2017). Univariate and multivariate skewness and kurtosis for measuring nonnormality: Prevalence, influence and estimation. *Behavior research methods*, 49(5), pp. 1716–1735. doi:10.3758/s13428-016-0814-1.
- Cannon, W. B. (1987). The James-Lange Theory of Emotions: A critical examination and an alternative theory. *The American Journal of Psychology*, 100(3/4), pp. 567–586. doi: 10.2307/1422695
- Caplan, R. D. (1983). Person-environment fit: Past, present, and future. In: C. Cooper ed., In: *Stress research: New directions for the 1980s*. New York: Wiley. pp. 35-78.
- Caplan, R. D. (1987). Person-environment fit in organizations: Theories, factors, and values. In: A. W. Riley & S. J. Zaccaro, eds., *Occupational stress and organizational effectiveness*. USA: Praeger.
- Cardoso, J., Sheth, A. P., Miller, J. A., Arnold, J., & Kochut, K. J. (2004). Quality of Service for Workflows and Web Service Processes. *Web Semantics: Science, Services and Agents on the World Wide Web*, 1(3), pp. 281-308. doi:10.1016/j.websem.2004.03.001.
- Carlos Pinho, J. and Macedo, I.M. (2008). Examining the antecedents and consequences of online satisfaction within the public sector. *Transforming Government: People, Process and Policy*, 2(3), pp.177–193. doi:10.1108/17506160810902185.
- Carman, J. M. (1990). Consumer perceptions of service quality: An assessment of the SERVQUAL dimension. *Journal of Retailing*, 66 (1), pp. 33-55.
- Carrillat, F.A., Jaramillo, F., & Mulki, J.P. (2007). The validity of the SERVQUAL and SERVPERF scales. *International Journal of Service Industry Management*, 18(5), pp. 472 – 490. doi: 10.1108/09564230710826250.
- Carson, P. P. (2003). The power of minds at work: Organizational intelligence in action. *Journal of Applied Management and Entrepreneurship*, 8. pp. 116.

- Cartwright, S., & Cooper, C. L. (2002). *ASSET: An organisational stress screening tool - The management guide*. United Kingdom: RCL Ltd.
- Carvalho, A. V., & Esteban-Navarro, M. (2016). Intelligence audit: Planning and assessment of organizational intelligence systems. *Journal of Librarianship and Information Science*, 48(1), pp. 47–59. doi:10.1177/0961000614536198
- Cattell, R. B. (1978). *The scientific use of factor analysis in behavioral and life sciences*. USA: Springer.
- Caudle, S. L., Gorr, W. L., & Newcomer, K. E. (1991). key information systems management issues for the public sector. *MIS Quarterly*, 15(2), pp. 171–188. doi: 10.2307/249378.
- Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among U.S. managers. *Journal of Applied Psychology*, 85, pp. 65–74. doi:10.1037/0021-9010.85.1.65.
- Cenfetelli, R.T. & Bassellier, G. (2009). Interpretation of formative measurement in information systems research. *MIS Quarterly*, 33 (4), pp. 689-708. doi: 10.2307/20650323.
- Chang, S.J., Witteloostuijn, A.V., & Eden, L. (2010). From the editors: Common method variance in international business research. *Journal of International Business Studies*, 41, pp. 178–184. doi:10.1057/jibs.2009.88.
- Checkland, P.B., & Scholes, J. (1990). *Soft systems methodology in action*. Chichester: John Wiley & Son.
- Chen W.S. (2014). Burnout in academics: An empirical study in private universities in Malaysia. *The International Journal of Social Sciences and Humanities Invention*, 1 (2), pp. 66 -72.
- Chen, J., Yan, Y. & Mingins, C. (2011). A three-dimensional model for e-government development: With cases in China's regional e-government practice and experience. In: *2011 Fifth International Conference on Management of e-Commerce and e-Government*.
- Cho, Y.K., & Menor, L.J. (2009). Toward a provider-based view on the design and delivery of quality e-service encounters. *Journal of Service Research*, 13 (1), pp. 83-95. doi: 10.1177/1094670509350490.
- Chua, Y.P. (2013). *Mastering research statistics*. Malaysia: McGraw-Hill Education (Malaysia) Sdn. Bhd.
- Clark, V. L. P., & Creswell, J. W. (2015). *Understanding research: A consumer's guide* (2nd ed.). Boston: Pearson Education.

- Clarke, M.A. and Hill, S.R. (2012). Promoting employee wellbeing and quality service outcomes: The role of HRM practices. *Journal of Management & Organization*, 18(5), pp.702–713. doi:10.1017/s1833367200000626.
- Clegg, A. (2001). Occupational stress in nursing: a review of the literature. *Journal of Nursing Management*, 9, pp. 101-106. doi: 10.1046/j.1365-2834.2001.00216.x.
- Coelho, F., Augusto, M., & Lages, L. F. (2011). Contextual factors and the creativity of frontline employees: The mediating effects of role stress and intrinsic motivation. *Journal of Retailing*, 87(1), pp. 31–45. doi:10.1016/j.jretai.2010.11.004.
- Cohen, G., & Kotorov, R. (2016). *Organizational intelligence: How smart companies use information to become more competitive and profitable*. New York: Information Builders Inc.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2<sup>nd</sup> Edition)*. New York: Routledge.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), pp. 385–396. doi:10.2307/2136404.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). Perceived Stress Scale. *Journal of Health and Social Behavior*, 10, pp. 386–396. <http://www.mindgarden.com/products/pss.htm>
- Collier, J. E., & Bienstock, C. C. (2006). Measuring service quality in e-retailing. *Journal of Service Research*, 8(3), pp. 260–275. doi:10.1177/1094670505278867.
- Collins, H.J. (2010). *Creative research the theory and practice of research for the creative industries*. London Bloomsbury Visual Arts.
- Comrey, A. L., & Lee, H. B. (2002). *A first course in factor analysis*. New Jersey: Lawrence Erlbaum Associates, Inc.
- Connolly, R., Bannister, F., Kearney, A., (2010). Government website service quality: a study of the Irish revenue online service. *Eur. J. Inf. Syst.* 19, pp. 649–667. doi:10.1057/ejis.2010.45.
- Cooper, C.L. and Cartwright, S. (1997). An intervention strategy for workplace stress. *Journal of Psychosomatic Research*, 43(1), pp.7–16. doi:10.1016/s0022-3999(96)00392-3.
- Cooper, C. L. & Marshall, J. (1976). Occupational sources of stress: A review of the literature relating to coronary heart disease and mental ill health. *Journal of Occupational Psychology*, 49, pp. 11–28.
- Cooper, D. R., & Schindler, P. S. (2011). *Business research methods* (11th ed.). Boston: McGraw-Hill.
- Cox, T. (1993). *Stress research and stress management: Putting theory to work*. United Kingdom: Health and Safety Executive.



- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage publications.
- Creswell, J. W., Plano Clark, V. L., Gutmann, M., & Hanson, W. (2003). Advanced mixed methods research designs. In: A. Tashakkori & C. Teddlie, eds., *Handbook of mixed methods in social and behavioral research*. Thousand Oaks, CA: Sage. pp. 209–240.
- Creswell, J. W. and Plano Clark, V. L. (2006). *Designing and conducting mixed methods research* (2<sup>nd</sup> edition). Thousand Oaks, CA: Sage Publications, Inc
- Creswell, J.W. & Pot, C.N. (2017). *Qualitative inquiry and research design* (4th ed.). Thousand Oaks, CA: Sage Publications.
- Cristobal, E., Flavia'n, C., & Guinali'u, M. (2007). Perceived e-service quality (PeSQ): Measurement validation and effects on consumer satisfaction and web site loyalty. *Managing Service Quality*, 17(3), pp. 317-340. doi: 10.1108/ 09604520710744326.
- Cronin, J.J.J. and S.A. Taylor (1992). Measuring service quality: A re-examination and extension. *Journal of Marketing*, 56 (3), pp. 55-68.
- Cronquist, B. (2006). *Organizational Intelligence: a dynamic knowledge creating activity embedded in organizational routines*. [online] Available at: [https://www.researchgate.net/publication/228486122\\_Organizational\\_Intelligence\\_a\\_dynamic\\_knowledge\\_creating\\_activity\\_embedded\\_in\\_organizational\\_routines](https://www.researchgate.net/publication/228486122_Organizational_Intelligence_a_dynamic_knowledge_creating_activity_embedded_in_organizational_routines)[Accessed 7 December 2020].
- Cruz, Y. R., & Dominguez, E. G. (2007). The organizational intelligence: A necessary approach to information and knowledge management. *Instituto Brasileiro de Informaçã em Ciênciae Tecnologia*, 36(3), pp. 51–58. doi:10.1590/s0100-19652007000300006.
- Curtis, S. (2019) Digital transformation—the silver bullet to public service improvement? *Public Money & Management*, 39 (5), pp. 322-324. doi:10.1080/09540962.2019.1611233
- Dahalin, Z. M., Idrus, M. R., Kasiran, M. K., Nadzir, M. M., Dahari, R., Razak, R. A., & Wahab, N. N. A. (2018). Analysis of selected country of OSI performance: How Malaysia can improve the UN ranking. *Journal of Social Sciences Research*, 6, pp. 1246–1251. doi: 10.32861/jssr.spi6.1246.1251.
- Davenport, T.H., & Prusak, L. (1998). *Working knowledge*. Boston: Harvard Business School Press.
- Dawes, J., & Rowley, J. (1999). Negative evaluations of service quality - a framework for identification and response. *Journal of Marketing Practice: Applied Marketing Science*, 5(2), pp. 46–55. doi:10.1108/EUM0000000004554.

- De Angelis, C. T. (2013). A knowledge management and organizational intelligence model for public administration. *International Journal of Public Administration*, 36(11), pp. 807–819. doi:10.1080/01900692.2013.791315.
- De Jonge, J., Demerouti, E., & Dormann, C. (2013). Current theoretical perspectives in work psychology. In: M. C. W. Peeters, J. De Jonge, & T. W. Taris, eds., *An introduction to contemporary work psychology*. West Sussex: John Wiley & Sons. pp. 89–114.
- De Smet, A., Lund, S., & Schaninger, B. (2016). *Organizing for the future*. [online] Available at: <https://www.mckinsey.com/business-functions/organization/our-insights/organizing-for-the-future> [Accessed 7 Mar. 2019].
- Dealtry, R. (2005). Achieving integrated performance management with the corporate university. *Journal of Workplace Learning*, 16(1), pp. 65-78. doi:10.1108/13665620510574469
- Demerouti, E., & Bakker, A. B. (2014). Job crafting. In: M. C. W. Peeters, J. de Jonge, & T. W. Taris, eds., *An introduction to contemporary work psychology*. West Sussex: Wiley-Blackwell. pp. 414–433.
- Demerouti, E., Bakker, A. B., & Bulters, A. J. (2004). The loss spiral of work pressure, work-home interference and exhaustion: Reciprocal relations in a three-wave study. *Journal of Vocational Behavior*, 64, pp. 131–149. doi:10.1016/S0001-8791(03)00030-7.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, pp. 499-512.
- Demidenko, E. (2016). The p-Value You Can't Buy. *The American Statistician*, 70(1), pp.33–38. doi:10.1080/00031305.2015.1069760.
- Dencker, J., Bacq, S.C., Gruber, M. & Haas, M. (2019). Reconceptualizing necessity entrepreneurship: A contextualized framework of entrepreneurial processes under the condition of basic needs. *Academy of Management Review*. doi:10.5465/amr.2017.0471.
- Denovan, A., Dagnall, N., Dhingra, K., & Grogan, S. (2019). Evaluating the Perceived Stress Scale among UK university students: implications for stress measurement and management. *Studies in Higher Education*, 44(1), pp. 120–133. doi: 10.1080/03075079.2017.1340445.
- Derks, D., & Bakker, A. (2010). The impact of e-mail communication on organizational life. *Cyberpsychology*, 4 (1), pp. 1–14.
- DeVellis, R. (2017). *Scale development: Theory and applications* (4th ed.). London: Sage Publications Inc.
- Dickinson, H. and Glasby, J. (2010). 'Why Partnership Working Doesn't Work'. *Public Management Review*, 12(6), pp.811–828. doi:10.1080/14719037.2010.488861.

- Dwiyanti, R., Hamzah, H., & Abas, N.B. (2020). Psychological contracts, job stress, and turnover intention for salesperson retail company. *International Journal of Scientific Research and Management*, 8, pp. 1930-1936. doi:10.18535/ijstrm/v8i09.em01.
- Dyduch W., & Bratnicki M. (2016). Intelligent organisation characteristics. *Studia i Prace Kolegium Zarządzania i Finansów, Zeszyt Naukowy*, 149, pp. 9–23.
- Economic Planning Unit (2021). *Twelfth Malaysia Plan, 2021-2025*. [online] Epu.gov.my. Available at: <https://rmke12.epu.gov.my/en>.
- Edwards, J. R., Caplan, R. D., & Harrison, R. V. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 28-67). United Kingdom: Oxford University Press.
- Ehido, A., Awang, Z., Abdul Halim, B., & Ibeabuchi, C. (2020). Developing items for measuring quality of work life among Malaysian academics: An exploratory factor analysis procedure. *Humanities & Social Sciences Reviews*, 8(3), pp. 1295-1309. doi:10.18510/hssr.2020.83132.
- Einhorn, H.J., & Hogarth, R.M. (1981). Behavioral decision theory: Process of judgment and choice. *Annual Report of Psychology*, 32, pp. 53-88.
- Eisenhardt, K.M. (1989) Building Theories from Case Study Research. *The Academy of Management Review*, 14(4), 532-550.
- Elmadağ, A.B., Ellinger, A.E. Alleviating job stress to improve service employee work affect: the influence of rewarding. *Service Business*, 12, pp. 121-141. doi:10.1007/s11628-017-0340-y.
- Elsheikh, Y., & Azzeh, M. (2014). What facilitates the delivery of citizen centric e-government services in developing countries: Model development and validation through structural equation modelling. *International Journal of Computer Science & Information Technology*, 6(1), pp. 77. doi 10.5121/ijcsit.2014.6106.
- Erden, Z., Von Krogh, G., & Nonaka, I. (2008). The quality of group tacit knowledge. *Journal of Strategic Information Systems*, 17(1), pp. 4–18. doi: 10.1016/j.jsis.2008.02.002.
- Eschenfelder, K. R. (2004). Behind the web site: An inside look at the production of web based textual government information. *Government Information Quarterly*, 21, pp. 337–358. doi: 10.1016/j.giq.2004.04.004.
- Euske, K.J. (2003). Public, private, not-for-profit: everybody is unique? *Measuring Business Excellence*, 7(4), pp. 5-11. doi:10.1108/13683040310509250.
- Evenstad, S. B. N. (2018). The virtuous circle of ephemeralization and the vicious circle of stress: A systemic perspective on ICT worker burnout. *Futures*, 103, pp. 61–72. doi:10.1016/j.futures.2018.03.013.

- Everitt, B. S. (1975). Multivariate analysis: The need for data and other problem. *British Journal of Psychiatry*, 126, pp. 237-240.
- Falletta, S. V. (2008). *Organizational intelligence surveys*. *Training & Development*, 62 (6), pp. 52.
- Falletta, S., & Combs, W. (2018). The Organizational intelligence model in context: A comparative analysis and case profile. *OD Practitioner*, 50(1), pp. 22–29.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G\*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), pp.1149-1160. doi: 10.3758/BRM.41.4.1149.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39 (2), pp. 175-191. doi: 10.3758/bf03193146.
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). *Achieving integration in mixed methods designs-principles and practices*. Health Services Research. doi:10.1111/1475-6773.12117.
- Finn, A. & Wang, L. (2014). Formative vs. reflective measures: Facets of variation. *Journal of Business Research, Elsevier*, 67(1), pp. 2821-2826. doi:10.1016/j.jbusres.2012.08.001.
- Fishburn, P.C. (1970), *Utility Theory for Decision Making*. New York: John Wiley and Sons.
- Fisher, J., Strider, S.H., & Kelso, M. (2016). Leader-member exchange and its relationship to quality of work and stress among information technology (IT) workers. *Human Resource Management Research*, 6(2), pp. 23-39. doi:10.5923/j.hrnr.20160602.01.
- Flynn, N. (2007). *Public sector management* (5th ed.). London: Sage Publications.
- Fogli, L. (2006). *Customer service delivery*. San Francisco, CA: Jossey-Bass.
- Forbes, D.L. (2011). Toward a Unified Model of Human Motivation. *Review of General Psychology*, 15(2), pp.85–98. doi:10.1037/a0023483.
- Freedly, J. R., & Hobfoll, S. E. (1994). Stress inoculation for reduction of burnout: A conservation of resources approach. *Anxiety, stress & coping: An International Journal*, 6(4), pp. 311–325.
- Frey, B.B. (2018). The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation. *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation*, 4. doi:10.4135/9781506326139.
- Frone M. R. (1990). Intolerance of ambiguity as a moderator of the occupational role stress—strain relationship: A meta-analysis. *Journal of Organizational Behavior*, 11, pp. 309–320. doi:10.1002/(ISSN)1099-1379 n.

- Frost, F.A., & Kumar, M. (2000). INTSERVQUAL - An internal adaptation of the GAP model in a large service organisation. *Journal of Services Marketing*, 14 (5), pp. 358-377. doi:10.1108/08876040010340991.
- Fuller, R. B. (1973). *Nine chains to the moon*. London: Cape.
- Gaab, J., Rohleder, N., Nater, U. M., & Ehlert, U. (2005). Psychological determinants of the cortisol stress response: The role of anticipatory cognitive appraisal. *Psychoneuroendocrinology*, 30 (6), pp. 599-610. /10.1016/j.psyneuen.2005.02.001.
- Ganster, D. C., & Rosen, C. C. (2013). Work Stress and Employee Health: A Multidisciplinary Review. *Journal of Management*, 39(5), pp. 1085–1122. doi:10.1177/0149206313475815.
- Ganzert C., Martinelli, D.P., & Delai, I. (2012). Intelligence systems methodology: A systemic approach to the organizational intelligence function. *Knowledge Management Research & Practice*, 10, pp. 141-152. doi:10.1057/kmrp.2011.44.
- Gilbert, M.-H., Dagenais-Desmarais, V., & St-Hilaire, F. (2017). Transformational leadership and autonomy support management behaviors: The role of specificity in predicting employees' psychological health. *Leadership & Organization Development Journal*, 38(2), pp. 320–332. doi:10.1108/LODJ-08-2015-0173.
- Grandey, A. A., & Melloy, R. C. (2017). The state of the heart: Emotional labor as emotion
- Gil-Garcia, A. C. B., Maciel, C., & Pinto, F. B. (2005). A quality inspection method to evaluate e-government sites. In: M. A. Wimmer, M. A. Wimmer et al., eds., EGOV2005, LNCS 3591. New York City: Springer-Verlag. pp. 198–209.
- Gardner, H. (1992). *Multiple intelligences*. USA: Minnesota Center for Arts Education.
- Gardner, H. (2013). *Frequently Asked Questions—Multiple Intelligences And Related Educational Topics*. [online] Available at: [https://howardgardner01.files.wordpress.com/2012/06/faq\\_march2013.pdf](https://howardgardner01.files.wordpress.com/2012/06/faq_march2013.pdf).
- Garg, S., & Dhar, R. (2014). Effects of stress, LMX and perceived organizational support on service quality: Mediating effects of organizational commitment. *Journal of Hospitality and Tourism Management*, 21, pp. 64-75. doi:10.1016/J.JHTM.2014.07.002.
- Giddens, A. (1984), *The constitution of society: outline of the theory of structuration*. Berkeley, CA: University of California Press.
- Glaser, B., & Strauss, A. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Mill Valley, CA: Sociology Press.
- Glynn, M.A. (1996). Innovative genius: A framework for relating individual and organizational intelligences to innovation. *The Academy of Management Review*, 21(4), pp. 1081-1111.

- Godard, J. (2001). High performance and the transformation of work? The implications of alternative work practices for the experience and outcomes of work. *Industrial and Labor Relations Review*, 54(4), pp. 776–805.
- Gold, A.H., Malhotra, A., & Segars, A.H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management*, 18(1), pp. 185-214. doi:10.1080/07421222.2001.11045669.
- Goldberg, D., & Williams, P. (1991). *A user's guide to the general health questionnaire*. Berkshire: NFER-Nelson.
- Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). New Jersey: Lawrence Erlbaum Associates
- Grant A, Christianson M and Price R (2007) Happiness, health, or relationships? Managerial practices and employee well-being tradeoffs. *Academy of Management Perspectives* 21, pp. 51–63. doi:10.5465/AMP.2007.26421238.
- Green, J.P., Tonidandel, S. and Cortina, J.M. (2016). Getting Through the Gate. *Organizational Research Methods*, 19(3), pp.402–432. doi:10.1177/1094428116631417.
- Greiner, M.E., Bo'hmman, T., & Krcmar, H. (2007). A strategy for knowledge management. *Journal of Knowledge Management*, 11 (6), pp. 3-15. doi:10.1108/13673270710832127.
- Grönroos, C. (1990). *Service management and marketing: Managing the moments of truth in service competition*. USA: Lexington Books.
- Grönroos, C. (2001). The perceived service quality concept: A mistake? Managing Service Quality. *An International Journal*, 11(3), pp. 150-152. doi: 10.1108/09604520110393386
- Guest, D. E. (2017). Human resource management and employee well-being: towards a new analytic framework. *Human Resource Management Journal*, 27(1), pp. 22–38. doi:10.1111/1748-8583.12139.
- Gupta, P., & Suri, P. (2017). Measuring public value of e-governance projects in India: Citizens' perspective. *Transforming Government: People, Process and Policy*, 11 (2), pp. 236-261. doi:10.1108/TG-07-2016-0043.
- Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison Wesley.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Grablowsky, B. J. (1979). *Multivariate data analysis*. Tulsa, OK: PPC Books.
- Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, pp. 101–110. doi:10.1016/j.jbusres.2019.11.069.

- Hair, J.F., Black, W. C., Babin, B. J., & Anderson, R. E. (2018). *Multivariate data analysis*. Pearson Prentice Hall (8th ed.). Hampshire: Cengage Learning EMEA.
- Hair, J.F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate data analysis*. Pearson Prentice Hall (7th ed.). New York: Pearson Prentice Hall.
- Hair, J.F., Babin, B.J. and Krey, N. (2017). Covariance-Based Structural Equation Modeling in the Journal of Advertising: Review and Recommendations. *Journal of Advertising*, 46(1), pp.163–177. doi:10.1080/00913367.2017.1281777.
- Hair, J.F., Gabriel, M., Silva, D., & Junior, S.S. (2019). Development and validation of attitudes measurement scales: Fundamental and practical aspects. *RAUSP Management Journal*, 54, 490-507. Doi:10.1108/RAUSP-05-2019-0098.
- Hair, J.F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modelling (PLS-SEM)*. Thousand Oaks, CA: Sage Publishing.
- Hair, J.F., Ringle, C.M. & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), pp. 139-151. doi:10.2753/MTP1069-6679190202.
- Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), pp.2–24. doi:10.1108/eb-11-2018-0203.
- Hair, J.F., Sarstedt, M., Ringle, C.M. and Gudergan, S.P. (2018). *Advanced issues in partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks, CA: Sage Publishing.
- Hair J.F., Sarstedt, M., Hopkins, L. and G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM). *European Business Review*, 26(2), pp.106–121. doi:10.1108/eb-10-2013-0128.
- Halal, W. E. (2002). Organizational intelligence: A broader framework for understanding knowledge. *On the Horizon*, 10(4), pp. 43–49. doi:10.1108/oth.2002.27410dab.001.
- Halbesleben, J. & Bellairs, T. (2016). *What Are the Motives for Employees to Exhibit Citizenship Behavior?: A review of prosocial and instrumental predictors of organizational citizenship behavior*. United Kingdom: Oxford Handbooks Online.
- Halbesleben, J. R. B., & Bowler, W. M. (2007). Emotional exhaustion and job performance: The mediating role of motivation. *Journal of Applied Psychology*, 92(1), pp. 93–106. doi:10.1037/0021-9010.92.1.93.

- Hamad, Z. M. M. (2019). Talent management as a facilitator of organizational intelligence. *Management Science Letters*, 9(6), pp. 809–822. doi:10.5267/j.msl.2019.3.007.
- Hammond, R. K., Gnilka, P. B., & Ravichandran, S. (2019). Perceived stress as a moderator of perfectionism, burnout, and job satisfaction among the millennial service workforce. *Journal of Human Resources in Hospitality and Tourism*, 18(1), pp. 122–143. doi:10.1080/15332845.2019.1526542.
- Hampson, I. (1999). Lean production and the Toyota production system - Or, the case of the forgotten production concepts. *Economic and Industrial Democracy*, 20(3), pp. 369–391. doi:10.1177/0143831X99203003.
- Han, J., Sun, J.M., & Wang, J.L. (2020). Do high performance work systems generate negative effects? How and when? *Human Resource Management Review*, 30, pp. 1-14. doi:10.1016/j.hrmr.2019.100699.
- Harrison, M. I., & Shirom, A. (1999). *Organizational diagnosis and assessment. Bridging theory and practice*. Thousand Oaks, CA: Sage Publications.
- Harrison, R. V. (1978). Person-environment fit and job stress. In: C. L. Cooper & R. Payne, eds., *Stress at work*. New York: Wiley. pp. 175-205.
- Harrison, R. V. (1985). The person-environment fit model and the study of job stress. In: T. A. Beehr, & R. S. Bhagat, eds., *Human stress and cognition in organizations*. New York: Wiley. pp. 23-55.
- Haryani, P. (2016). Evaluasi kualitas layanan e-government pemerintah Kota Yogyakarta dengan metode e-govqual modifikasi. Modifikasi. Simposium Nasional RAPI XV, pp. 379–386.
- Hassan S., & Husain W. (2020). The different levels of depression and anxiety among Pakistani professionals. *Insights Depress Anxiety*, 4, pp. 012-018. doi:10.29328/journal.ida.1001014.
- Hausman, A. (2001). Variation in relationship strengths and its impact on performance and satisfaction business relationship. *Journal of Business and Industrial Marketing*, 16(7), pp. 660-16.
- Haywood-Farmer, J. (1988). A conceptual model of service quality. *International Journal of Operations & Production Management*, 8(6), 19-29. pp. 7-335. doi: 10.1108/ eb054839
- Heider, F. (1958). *The psychology of interpersonal relations*. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Hempel, C. G. (1942). The function of general laws in history. *Journal of Philosophy*, 39(2), pp. 35-48.
- Hempel, C. G. (1965). *Aspects of scientific explanation*. New York: The Free Press.



- Henseler, J., Ringle, C.M. and Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the Academy of Marketing Science*, 43 (1), pp. 115-135. doi:10.1007/S11747-014-0403-8.
- Henson, R. K., & Roberts, J. K. (2006). Use of exploratory factor analysis in published research: Common errors and some comment on improved practice. *Educational and Psychological Measurement*, 66(3), pp. 393-416. doi:10.1177/0013164405282485
- Hien, M.N. (2014). A study on evaluation of e-government service quality. *International Journal of Humanities and Social Sciences*, 8(1), pp. 16 - 19. doi:10.5281/zenodo.1336168.
- Hill, R. (1998). What sample size is “enough” in internet survey research? *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, 6(3-4), pp. 1-10.
- Hilton, R.J., & Sohal, A. (2012). A conceptual model for the successful deployment of Lean Six Sigma. *International Journal of Quality and Reliability Management*, 29(1), pp. 54–70. doi: 10.1108/02656711211190873.
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44, pp. 513-524.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology* 50 (3), 337-421.
- Hobfoll, S. E., & Freedy, J. (1993). Conservation of resources: A general stress theory applied to burnout. In: W. B. Schaufeli, C. Maslach & T. Marek, eds., *Professional burnout: Recent developments in theory and research* (pp. 115–133). New York: Routledge.
- Hobfoll, S. E., & Shirom, A. (2000). Conservation of resources theory: Application to stress and management in the workplace. In R. T. Golembiewski (Ed.), *Handbook of organization behaviour* (pp. 57-81). New York City: Marcel Dekker.
- Hobfoll, S.E. (2010). *Conservation of Resources Theory: Its Implication for Stress, Health, and Resilience*. *Oxford Handbooks Online*. Oxford University Press. doi:10.1093/oxfordhb/9780195375343.013.0007.
- Hooda, A., & Singla, M.L. (2020). Reengineering as a strategic stance for e-governance success - Mediating role of core-competencies: A mixed method study. *Transforming Government: People, Process and Policy*, 14(2), pp. 205-235. doi:10.1108/tg-01-2020-0017.
- Hopewell, S., Clarke, M., Lefebvre, C., & Scherer, R. (2007). Handsearching versus electronic searching to identify reports of randomized trials. *The Cochrane database of systematic reviews*, 2007(2), pp. 1-37. doi: 10.1002/14651858.MR000001.pub2.

- Horan, T. A., Abhichandani, T., & Rayalu, R. (2006). *Assessing user satisfaction of e-government services: Development and testing of quality-in-use satisfaction with Advanced Traveler Information Systems (ATIS)*. HICSS 06, Proceedings of the 39th Annual Hawaii International Conference on System Sciences, 4. (pp. 1–10).
- Hossain, M.D., Moon, J., Kim, J.K., & Choe, Y.C. (2011). Impacts of organizational assimilation of e-government systems on business value creation: A structuration theory approach. *Electronic Commerce Research and Applications*, 10 (2011), pp. 576–594. doi: 10.1016/j.elerap.2010.12.003.
- Hox, J.J., & T.M. Bechger (1998). An introduction to structural equation modelling. *Family Science Review*, 11, pp. 354–73.
- Hu, G., Pan, W., Lin, H., Kang, K., & Best, M. L. (2014). Study on the framework of e-government services capability: An empirical investigation. *Social Science Computer Review*, 32(1), pp. 56–73. doi: 10.1177/0894439313501614.
- Huang, S., van der Veen, R., & Song, Z. (2018). The impact of coping strategies on occupational stress and turnover intentions among hotel employees. *Journal of Hospitality Marketing & Management*, 27(1), pp. 1-20. doi:10.1080/19368623.2018.1471434.
- Hulland, J., Baumgartner, H., & Smith, K. M. (2017). Marketing survey research best practices: evidence and recommendations from a review of JAMS articles. *Journal of the Academy of Marketing Science*, pp. 1-17. doi:10.1007/s11747-017-0532-y.
- Huppert, F.A. (2009). Psychological Well-being: Evidence Regarding its Causes and Consequences. *Applied Psychology: Health and Well-Being*, [online] 1(2), pp.137–164. doi:10.1111/j.1758-0854.2009.01008.x.
- Husin, R., Saad, R., & Othman, Z. (2017). E-kerajaan: Tinjauan dan pelaksanaannya di Malaysia. *Journal of Technology and Operations Management*, 12 (2), pp: 7– 14.
- International Labour Organization (2016). *Workplace stress: A collective challenge*. Geneva, Switzerland: International Training Centre of the ILO.
- International Labour Organization (2022). *The role of digital labour platforms in transforming the world of work*. [online] Available at: [https://www.ilo.org/global/research/global-reports/weso/2021/WCMS\\_771749/lang--en/index.htm](https://www.ilo.org/global/research/global-reports/weso/2021/WCMS_771749/lang--en/index.htm).
- Isaac, S., & Michael, W. B. (1995). *Handbook in research and evaluation*. San Diego, Ca: Educational and Industrial Testing Services.
- Ishikawa, K. (1991), *What is total quality control? The Japanese way*. Cliffs, NJ: Prentice-Hall.
- Ismail, H. & Al-Assa'ad, N. (2020). The impact of organizational intelligence on organizational agility: An empirical study in Syrian Private Banks. *International Journal of Academic*

*Research in Business and Social Science*, 10(2), pp. 465–483.  
doi:10.6007/IJARBSS/v10-i2/6944.

- Ito, J. K., & Brotheridge, C. M. (2003). Resources, coping strategies, and emotional exhaustion: A conservation of resources perspective. *Journal of Vocational Behavior*, 63(3), pp. 490–509. doi:10.1016/S0001-8791(02)00033-7.
- Ivancevich, J. M., & Matteson, M. T. (1980). *Stress and work*. Glenview: Scott, Foresman.
- Ivankova, N. V., Creswell, J.W., & Stick, S. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods*, 18 (1), pp. 3–20. doi:10.1177/1525822X052822.
- Jackson P.R., Wall T.D., Martin R., & Davids K (1993) New measures of job control, cognitive demand and production responsibility. *Journal of Applied Psychology*, 78, pp. 753-762.
- Jackson, L., & Rothmann, S. (2005). Work-related well-being of educators in a district of the North-West Province. *Perspectives in Education*, 23, pp. 107-122.
- Jain, S.K., & Gupta, G. (2004). Measuring Service Quality: SERVQUAL vs. SERVPERF Scales. *The Journal for Decision Makers*, 29(2), pp. 25–37. doi:10.1177/0256090920040203.
- Jakobsen, M., & Jensen, R. (2015). Common method bias in public management studies. *International Public Management Journal*, 18 (1), pp. 3-30. doi: 10.1080/10967494.2014.997906.
- Jamaiah, Y., Aziz, D., & Nur Hani, Z.A (2019). The implementation of business intelligence and analytics integration for organizational performance management: A case study in public sector. *International Journal of Advanced Computer Science and Applications*, 10(11), pp. 292-299. doi:10.14569/IJACSA.2019.0101140.
- Jamal, M. (2009) Self-employment and quality of work and nonwork life: A study in cross-cultural management. *Journal of Small Business & Entrepreneurship*, 22(4), pp. 455-466. doi:10.1080/08276331.2009.10593465.
- Jamal, M., & Baba, V. V. (2000). Job stress and burnout among Canadian managers and nurses. *Canadian Journal of Public Health*, 91, pp. 454–458. doi: 10.1007/BF03404828.
- Janita, M.S. and Miranda, F.J. (2018). Quality in e-Government services: A proposal of dimensions from the perspective of public sector employees. *Telematics and Informatics*, 35(2), pp.457–469. doi:10.1016/j.tele.2018.01.004.
- Jansen, A., & Ølnes, S. (2016). The nature of public e-services and their quality dimensions. *Government Information Quarterly*, 33(4), pp. 647–657. doi:10.1016/j.giq.2016.08.005.

- Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of Consumer Research*, 30(2), pp. 199–218. doi:10.1086/376806.
- Jawahar, I. M., Stone, T. H., & Kisamore, J. L. (2007). Role conflict and burnout: The direct and moderating effects of political skill and perceived organizational support on burnout dimensions. *International Journal of Stress Management*, 14(2), pp. 142–59. doi:10.1037/1072-5245.14.2.142.
- Jensen, J. M., Patel, P. C., & Messersmith, J. G. (2013). High-performance work systems and job control: Consequences for anxiety, role overload, and turnover intentions. *Journal of Management*, 39(6), pp. 1699–1724. doi.org/10.1177/0149206311419663.
- Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of Management Journal*, 55(6), pp. 1264–1294. doi:10.5465/amj.2011.0088.
- Jiang, X., & Ji, S. (2014). E-government web portal adoption: A service level and service quality perspective. In: *2014 47th Hawaii International Conference on System Sciences*. Pp. 2179-2188.
- Jiang, Y. and Lu Wang, C. (2006). The impact of effect on service quality and satisfaction: The moderation of service contexts. *Journal of Services Marketing*, 20(4), pp. 211-218. doi: 10.1108/08876040610674562.
- Jing, F., & Wenting, Y. (2014). A study of G2C e-government citizen's satisfaction: Perspectives of online service quality and offline service quality. In: *2014 11th International Conference on Service Systems and Service Management (ICSSSM)*.
- Johanson, G. A., & Brooks, G. P. (2010). Initial scale development: Sample size for pilot studies. *Educational and Psychological Measurement*, 70 (3), pp. 394–400. doi:10.1177/0013164409355692.
- Johnson, P. and Duberley, J. (2000). *Understanding management research: An introduction to epistemology*. London: Sage Publications.
- Johnson, R. B. & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33, pp. 14–26. doi:10.3102/0013189X033007014.
- Johnson, I.R and Rohde, D.M. (2022). Job Stress, Emotional Exhaustion, Job Satisfaction, and Turnover Intentions: The Role of Servant Leadership. *North American Journal of Psychology*, 24 (3), pp. 543-560.
- Johri, A., & Aggarwal, A. (2016). *Competitive intelligence: Millennium intelligence for winning businesses*. Mumbai: Himalaya Publishing House Pvt. Ltd.

- Kahn, B.K., Strong, D.M., & Wang, R.Y. (2002). Information quality benchmarks: Product and service performance. *Communication of the Ach*, 45(4), pp. 184–192. doi:10.1145/505248.506007.
- Kahn, R. L., Wolfe, D. M., Quinn, R.P, Snoek, J.D., & Rosenthal, R.A. (1964). *Organizational stress: Studies in role conflict and ambiguity*. New York: John Wiley.
- Kahneman, D., & Tversky, A. (1979). *Prospect theory: an analysis of decision under risk*. *Econometrica*, 47 (2), pp. 263-292. doi:10.2307/1914185.
- Kahneman, D., & Tversky, A. (2018). Prospect theory: An analysis of decision under risk. *Experiments in Environmental Economics*, 1(2), pp. 143–172. doi:10.2307/1914185.
- Kaklan, V.D. (2005). Organizational intelligence: Antecedents and consequences. *Journal of Business & Economics Research*, 3 (10), pp. 43-54. doi:10.19030/JBER.V3I10.2818.
- Kaliannan, M., & Awang, H. (2010). Adoption and use of e-government services: A case study on e-procurement in Malaysia. *WSEAS Transactions on Business and Economics*, 1(7), 1-10.
- Kalkan, V. D. (2005). Organizational intelligence: Antecedents and consequences. *Journal of Business & Economics Research*, 3(10). doi:10.19030/jber.v3i10.2818.
- Kandampully, J. and Menguc, B. (2000). Managerial practices to sustain service quality: an empirical investigation of New Zealand service firms. *Marketing Intelligence & Planning*, 18(4), pp.175–184. doi:10.1108/02634500010333299.
- Kanner, A. D., Coyne J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine*, 4, pp. 1-39.
- Karasek, R. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24, pp. 285-306.
- Karatepe, O. M., Yavas, U., Babakus, E., & Deitz, G. D. (2018). The effects of organizational and personal resources on stress, engagement, and job outcomes. *International Journal of Hospitality Management*, 74, pp. 147–161. doi:10.1016/j.ijhm.2018.04.005.
- Karkin, N., & Janssen, M. (2014). Evaluating websites from a public value perspective: A review of Turkish local government websites. *International Journal of Information Management*, 34(3), pp. 351–368. doi: 10.1016/j.ijinfomgt.2013.11.004.
- Karunasena, K., & Deng, H. (2012). Critical factors for evaluating the public value of e-government in Sri Lanka. *Government Information Quarterly*, 29 (1), pp. 76–84. doi:10.1016/j.giq.2011.04.005.

- Kassim, M.S.A, Ismail, A. & Ismail, R. (2018). A review of occupational stress prevalence and its predictors among selected working populations in Malaysia. *Malaysian Journal of Public Health Medicine*, 18 (2), pp. 1-6.
- Kašubienė, L., & Vanagas, P. (2007). Assumptions of e-government services quality evaluation. *Engineering Economics*, 5(55), pp. 68-74. doi:10.5755/J01.EE.55.5.11503.
- Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations*. New York:Wiley.
- Kaylor, C., Deshazo, R., & Van Eck, D. (2001). Gauging e-government: A report on implementing services among American cities. *Government Information Quarterly*, 18, pp. 293–307. doi:10.1016/S0740-624X(01)00089-2.
- Kelloway, K.E., & Myers, V. (2019). Leading the service-profit chain: How leaders’ behaviors can affect customer experience. *Research in Occupational Stress and Well Being*, 17, pp. 71–90. doi:10.1108/S1479-355520190000017004.
- Kenny, D. A. (2008). Reflections on mediation. *Organizational Research Methods*, 11(2), pp. 353–358. doi:10.1177/1094428107308978.
- Keshavarz, H., Givi, M. R. E., & Shekari, M. R. (2018). Knowledge management infrastructures and organizational intelligence in Iranian research centers. *Data Technologies and Applications*. 52(1), pp. 2–15. doi:10.1108/DTA-12-2016-0080.
- Kiani, M.P., Jozam, M.P.J., & Jozam, M.P.J. (2015). Organizational intelligence, survival factor of today’s organizations. *International Journal of Advanced Studies in Humanities and Social Science*, 4 (4), pp. 286-300. doi:10.22034/IJASHSS.2020.110283.
- Kimball, E., & Loya, K. I. (2017). Using qualitative inquiry to promote organizational intelligence. *New Directions for Institutional Research*, 2017(174), pp. 95–101. doi:10.1002/ir.20223. doi:10.1002/ir.20223.
- Klay, W.E. (2003). Performance improvement requires putting new perspectives and old lessons to work. *Public Performance & Management Review*, 26 (3), pp. 232-236. doi:10.1177/1530957602250228.
- Kline, P. (1979). *Psychometrics and Psychology*. London: Academic Press.
- Kline, R. B. (2016). *Principles and Practice of Structural Equation Modelling*. New York: Guilford Press.
- Kline, R.B. (2015). *Principles and Practice of Structural Equation Modelling*. New York: Guilford Publication.
- Koay, K.Y., Soh, P.C.-H. and Chew, K.W. (2017). Do employees’ private demands lead to cyberloafing? The mediating role of job stress. *Management Research Review*, 40(9), pp. 1025-1038. doi:10.1108/MRR-11-2016-0252.

- Kock, N., & Lynn, G.S. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for Information Systems*, 13 (7), pp. 546-580. doi: 10.17705/1jais.00302.
- Kokoroko, E., & Sanda, M.A (2019). Effect of workload on job stress of Ghanaian OPD Nurses: The role of co-worker support. *Safety and Health at Work*, 10 (3), pp. 341-346. doi:10.1016/j.shaw.2019.04.002.
- Koon V.Y, Tee Y.H. (2020). When does ostracism lead to turnover intention? The moderated mediation model of job stress and job autonomy. *IIMB Management Review*, 32(3), pp. 238-248. doi:10.1016/j.iimb.2019.10.007.
- Kord, B., Ghasemi, M., & Amin, A.K. (2013). Measuring the organizational intelligence of the experts and managers of the cement factory in Sistan. *European Online Journal of Natural and Social Sciences*, 2, pp. 959-967.
- Korsten, H. and Bothma, T.J.D. (2005). Evaluating South African government Web sites: Methods, findings and recommendations (Part 1). *SA Journal of Information Management*, 7(2). doi:10.4102/sajim.v7i2.260.
- Krekel, C., Ward, G., & De Neve, J-E. (2019). *Employee wellbeing, productivity, and firm performance*. Saïd Business School Working Paper 2019-04. doi:10.2139/ssrn.3356581.
- Kumar, M., Talib, S.A., & Ramayah, T. (2013). *Business research methods*. Shah Alam, Selangor: Oxford University Press.
- Kumar, R. (2011). *Research methodology: A step-by-step guide for beginners* (3<sup>rd</sup> ed.). London: Sage Publication.
- Kumar, R., Sachan, A. & Gupta, P. (2021). An examination of the e-government service value chain. *Information Technology & People*, 34(3), pp. 889-911. doi:10.1108/ITP-09-2018-0438.
- Kuo, T. (2011). How to improve organizational performance through learning and knowledge? *International Journal of Manpower*, 32 (5/6), pp. 581-603. doi:10.1108/01437721111158215.
- Kuo, N.T., Lin, L.P., Chang, K.C. & Cheng, Y.S (2022): How emotional labour and job stress affect the job performance of tour leaders: moderating effects of job characteristics and social media use intensity. *International Journal of Hospitality & Tourism Administration*, pp. 1-27. doi: 10.1080/15256480.2022.2078454.
- Kurpius, D. (1993). *The Fifth Discipline: The art and practice of the learning organization*: Book review. *Consulting Psychology Journal: Practice and Research*, 45. doi:10.1037/1061-4087.45.4.31.
- Kuzey, C., M. Sait Dinc, M.S. Gungormus, A.H., & Incirkus, L. (2019). Quality in e-government accounting services: A model of relationships between e-service quality

- dimensions and behaviors. *Eurasian Journal of Business and Economics* 12(23), pp. 63-78. doi:10.17015/ejbe.2019.023.04.
- Ladhari, R. (2010). Developing e-service quality scales: A literature review. *Journal of Retailing and Consumer Services*, 17(6), pp. 464-477. doi:10.1016/j.jretconser.2010.06.003.
- Lai, J.Y. (2006). Assessment of employees' perceptions of service quality and satisfaction with e-business. *International Journal of Human-Computer Studies*, 64 (9), pp. 926–938. doi:10.1145/1125170.1125228.
- Lai, J.-Y. and Chen, W.-H. (2009). Measuring e-business dependability: The employee perspective. *Journal of Systems and Software*, 82(6), pp.1046–1055. doi:10.1016/j.jss.2009.02.029.
- Lambert, E.G., Hogan, N.L., Camp, S.D., & Ventura, L.A. (2006). The impact of work–family conflict on correctional staff: A preliminary study. *Criminology and Criminal Justice*, 6, 371–387. doi: 10.1177/1748895806068572.
- Lance, C. E., & Vandenberg, R. J. (2009). Introduction. In: C. E. Lance & R. J. Vandenberg, eds., *Statistical and methodological myths and urban legends: Doctrine, verity and fable in the organizational and social sciences*. New York: Taylor & Francis Group. pp. 1–4.
- Lance, C. E., Teachout, M. S., & Donnelly, T. M. (1992). Specification of the criterion construct space: An application of hierarchical confirmatory factor analysis. *Journal of Applied Psychology*, 77, pp. 437–452.
- Larson, L. L. (2004). Internal auditors and job stress. *Managerial Auditing Journal*, 19 (9), 1119-1130. doi:10.1108/02686900410562768.
- Lawler, E. E., III (1986). *High-involvement management*. San Francisco, CA: Jossey-Bass.
- Lazarus, R. S. & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York: McGraw-Hill.
- Lazarus, R. S. (1981). The stress and coping paradigm. In: C. Eisdorfer, D. Cohen, A. Kleinman, & P. Maxim, eds., *Models for clinical psychopathology*. Lancaster: MTP Press. pp. 177-214.
- Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist*, 46(8), pp. 819–834. doi:10.1037/0003-066X.46.8.819.
- Lazarus, R. S., & Folkman, S. (1986). Cognitive theories and the issue of circularity. In: M. H. Appley & R. Trumbull, eds., *Dynamics of stress*. New York: Plenum Press. pp. 63-80.



- Lee, G.G., & Lin, H.F. (2005). Customer perceptions of e-service quality in online shopping. *International Journal of Retail & Distribution Management*, 33 (2), pp. 161-176. doi: 10.1108/09590550510581485.
- Lee, H., Lee, Y., & Yoo, D. (2000). The Determinants of Perceived Service Quality and its Relationship with Satisfaction. *Journal of Services Marketing*, 14(3), pp. 217–231. doi: 10.1108/08876040010327220.
- Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology*, 81, pp. 123–133.
- Lee-Geiller, S., & Lee, D.T. (2019). Using government websites to enhance democratic e-governance: A conceptual model for evaluation. *Government Information Quarterly*, 36 (2), pp. 208-225. doi:10.1016/j.giq.2019.01.003.
- Lefter, V., Prejmerean, M., & Vasilache, S. (2008), The dimensions of organizational intelligence in romanian companies – a human capital perspective. *Theoretical and Applied Economics*, 10 (10), pp. 39-52.
- Leiter, M. P. (1993). Burnout as a developmental process: Consideration of models. In: W. B. Schaufeli, C. Maslach, & T. Marek, eds., *Professional burnout: Recent developments in theory and research*. New York: Taylor & Francis Group. pp. 237–250.
- Lepine, J. A., Podsakoff, N. P., & Lepine, M. A. (2005). A meta-analytic test of the challenge stressor-hindrance stressor framework: An explanation of the inconsistent relationship among stressors and performance. *Academy of Management Journal*, 48(5), pp. 764–775. doi: 10.5465/AMJ.2005.18803921.
- Lewin, K. (1947). Group decision and social change. In: T. M. Newcomb & E. L. Hartley, eds., *Readings in social psychology*. New York: Rinehart & Winston.
- Lewis, R. & Booms, B. (1983). The marketing aspects of service quality, In: L. Berry, G. Shostack, & G. Upah, eds., *Emerging perspectives on services marketing*. Chicago: American Marketing Association, pp. 99-107.
- Li, H., & Suomi, R. (2009). A proposed scale for measuring e-service quality. *Int. J. u- e-Serv. Sci. Technol.* 2 (1), 1–10.
- Li, Y., & Shang, H. (2020). Service quality, perceived value, and citizens' continuous-use intention regarding e-government: Empirical evidence from China. *Information & Management*, 57(3), pp. 1-15. doi:10.1016/j.im.2019.103197.
- Li, Y.N., Tan, K.C., & Xie, M. (2002). Measuring web-based service quality. *Total Quality Management and Business Excellence* 13 (5), pp. 685–700.
- Liang, T. Y. (2002), The inherent structure and dynamic of intelligent human organizations, *Human Systems Management*, 21(1), pp. 9-19. doi:10.3233/HSM-2002-21102.

- Liao, H., Toya, K., Lepak, D. P., & Hong, Y. (2009). Do they see eye to eye? Management and employee perspectives of high-performance work systems and influence processes on service quality. *Journal of Applied Psychology*, 94(2), pp. 371–391. doi:10.1037/a0013504.
- Liashenko, J. (2004). In: S. Edwards, ed., *Philosophical Issues in Nursing*. Hong Kong: Macmillan Press, pp.9.
- Liebowitz, J. (2004). *Addressing the human capital crisis in the federal government: A knowledge management perspective*. Oxfordshire: Butterworth-Heinemann.
- Lindell, M.K. and Whitney, D.J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*, 86(1), pp.114–121. doi:10.1037/0021-9010.86.1.114.
- Liu, Y., Chen, X. & Wang, X. (2010). Evaluating government portal websites in China. In: *PACIS 2010 Proceedings, AIS*. [online] Available at: <http://aisel.aisnet.org/pacis2010/88>.
- López-Robles, J.R., Otegi-Olasoa, J.R., Porto Gómez, I., & Coboc M.J. (2019). 30 years of intelligence models in management and business: A bibliometric review. *International Journal of Information Management*, 48, pp. 22–38. doi:10.1016/j.ijinfomgt.2019.01.013.
- Lor, C., Deshazo, R., & Van Eck, D. (2001). Gauging e-government: A report on implementing services among American cities. *Government Information Quarterly*, 18, pp. 293–307.
- Ludwig, V.B. (1972). The model of open systems: Beyond molecular biology. In: A. D. Breck et al., eds., *Biology, history and natural philosophy*. New York: Plenum Press, pp. 17-30.
- Maccrimmon, K. R., & Larsson, S. (1979). Utility theory: Axioms versus paradoxes. In: M. Allais and O. Hagen, eds., *Expected Utility Hypothesis and the Allais Paradox, forthcoming in Theory and Decision*. New York: Springer.
- MacKenzie, S. B. (2003). The dangers of poor construct conceptualization. *Journal of the Academy of Marketing Science*, 31(3), 323-326. doi: 10.1177/0092070303031003011.
- MacKenzie, S., Podsakoff, P., & Podsakoff, N. (2011). Construct measurement and validation procedures in MIS and behavioral research: Integrating new and existing techniques. *MIS Quarterly*, 35(2), pp. 293-334. doi:10.2307/23044045.
- MacKinnon, D. P., & Pirlott, A. G. (2015). Statistical approaches for enhancing causal interpretation of the M to Y relation in mediation analysis. *Personality and Social Psychology Review*, 19(1), pp. 30–43. doi:10.1177/1088868314542878.

- MacKinnon, D. P., Coxé, S., & Baraldi, A. N. (2012). Guidelines for the Investigation of Mediating Variables in Business Research. *Journal of business and psychology*, 27(1), pp. 1–14. doi:10.1007/s10869-011-9248-z.
- Madu, C. N., & Madu, A. A. (2002), Dimensions of e-quality. *International Journal of Quality and Reliability Management*, 19(3), pp. 246-258. doi:10.1108/02656710210415668.
- Magala, S., Akgun, A. E., Byrne, J., & Keskin, H. (2007). Organizational intelligence: A structuration view. *Journal of Organizational Change Management*, 20(3), pp. 272–289. doi:10.1108/09534810710740137.
- Mahfooz, Z., Arshad, A., Nisar, Q.A., Ikram, M., & Azeem, M.U. (2017). Does Workplace Incivility & Workplace Ostracism influence the Employees' Turnover Intentions? Mediating Role of Burnout and Job Stress & Moderating Role of psychological Capital. *The International Journal of Academic Research in Business and Social Sciences*, 7, pp. 398-413. doi: 10.6007/IJARBS/V7-I8/3244.
- Mahmood, M.H., Coons, S.J., Guy, M.C. and Pelletier, K.R. (2010). Development and Testing of the Workplace Stressors Assessment Questionnaire. *Journal of Occupational and Environmental Medicine*, 52(12), pp.1192–1200. doi:10.1097/jom.0b013e3181fb53dc.
- Malekzadehi, G. (2010). Organizational intelligence is a powerful tool in knowledge-based organizations management. *Special Quarterly Magazine for Parks and Growth Centers*, 22, pp. 31-37.
- Malik, O. F., Schat, A. C. H., Shahzad, A., Raziq, M. M., & Faiz, R. (2021). Workplace psychological aggression, job stress, and vigor: A test of longitudinal effects. *Journal of Interpersonal Violence*, 36(5–6), pp. 1-29. doi:10.1177/0886260518770650.
- MAMPU (2015). *MyGovEA services*. [online] Available at: <https://www.mampu.gov.my/images/agensikerajaan/perkhidmatan/Maklumat-1GovEA.pdf> [Accessed 8 Dec. 2021].
- MAMPU (2016). *Panduan pembudayaan dan pemeraksanaan inovasi dalam sektor awam melalui horizon baharu KIK*. [online] Available at: <https://www.mampu.gov.my/ms/latar-belakang-panduan-pembudayaan-dan-pemeraksanaan-inovasi-dalam-sektor-awam-melalui-horizon-baharu-kik> [Accessed 12 Dec. 2020].
- MAMPU (2019). *Pelan Tindakan Online Service Index 2019-2020*. [online] Available at: <https://www.malaysia.gov.my/media/uploads/c7c8fbbb-5ac9-4f56-a818-4d17a3086532.pdf> [Accessed 12 Dec. 2020].
- MAMPU (2020a). *Data sharing: Big data analytics. Malaysian Government Central Data Exchange (MyGDX)*. [online] Available at: <https://www.malaysia.gov.my/portal/content/30598>. [Accessed 8 Dec. 2021].
- MAMPU (2020b). *e-Participation: Online service delivery*. [online] Available at: <https://www.malaysia.gov.my/portal/subcategory/823>. [Accessed 30 Dec. 2020].

- MAMPU (2017). *Fast Evolving Technology: Big data analytics. Public sector big data analytics (DRSA)*. [online] Available at: <https://www.malaysia.gov.my/portal/content/30734>. [Accessed 8 Nov. 2021].
- MAMPU. (2018). *Panduan pengurusan projek ICT sektor awam*. MAMPU Prime Minister's Department of Malaysia. [online] Available at: <http://150.242.180.158/index.php/ms/garis-panduan/garis-panduan-pengurusan-projek-ict-prisa>. [Accessed 18 Dec. 2021].
- MAMPU. (2021a). *Pelan Strategik MAMPU 2021-2025*. [online] Available at: <https://www.mampu.gov.my/en/publication/book/> [Accessed 14 Dec. 2022].
- MAMPU. (2021b). *Pelan Strategik Pendigitalan Sektor Awam 2021-2025*. [online] Available at: <https://www.mampu.gov.my/en/publication/book/> [Accessed 14 Dec. 2022].
- MAMPU (2005). *Repositori Dasar dan PKPA: Carian*. [online] Available at: <https://dasar.mampu.gov.my/search-g/result?q=KPI> [Accessed 10 Dec. 2021].
- MAMPU (2022). *SPLaSK: Sistem Pemantauan Laman Web dan Servis Kerajaan*. [online] Available at: <https://splask.mampu.gov.my/dashboard> [Accessed 1 Dec. 2022].
- Manfred (1991). *Organizations on the couch : clinical perspectives on organizational behavior and change*. San Francisco, CA: Jossey-Bass.
- Marabelli, M., & Newell, S. (2017). Innovation in healthcare settings: The power of everyday practices. In *The Routledge Companion to Management Information Systems*. doi:10.4324/9781315619361. pp. 328–340.
- Marks-Moran D. (1999) Reconstructing nursing: evidence, artistry and the curriculum. *Nurse Education Today*, 19, pp. 3-11.
- Martin, G. P., McKee, L., & Dixon-Woods, M. (2015). Beyond metrics? Utilizing “soft intelligence” for healthcare quality and safety. *Social Science and Medicine*, 142, pp. 19–26. doi:10.1016/j.socscimed.2015.07.027.
- Mason, J. W. (1971). A re-evaluation of the concept of 'non- specificity' in stress theory. *Journal of Psychiatric Research*, 8, pp. 323-33.
- Matheson, D. & Matheson, J.E. (2001). Smart organizations perform better. *Research-Technology Management*, 44 (4), pp. 49-54. doi:10.1080/08956308.2001.11671442.
- Matin, H.Z., Jandaghi, G., Hamidizadeh, A., & Haj Karimi, F. (2010). Studying status of organizational intelligence in selected public offices of Qom. *European Journal of Social Sciences*, 14(4), pp. 613-620.
- Matsuda, T. (1992). Organizational intelligence: coordination of human intelligence and machine intelligence. *Economics and cognitive science*, pp.171–180. doi:10.1016/b978-0-08-041050-0.50021-2.

- Maxcy, S. J. (2003). Pragmatic threads in mixed methods research in the social sciences: The search for multiple modes of inquiry and the end of the philosophy of formalism. In: A. Tashakkori & C. Teddlie, eds., *Handbook of mixed methods in social and behavioral research*. Thousand Oaks, CA: Sage Publications, Inc. pp. 51–89.
- McClelland, D. C. (1951). *Personality*. New York: Sloane, Dryden, Holt.
- McClelland, D. C. 1961. *The achievement society*. Princeton, NJ: Von Nostrand.
- McClelland, D. C. (1975). *Power: The inner experience*. New York: Irvington.
- McClelland, D. C. (1985). *Human motivation*. Glenview, IL: Scott,Foresman.
- McHugh, M. (1997). The stress factor: Another item for the change management agenda? *Journal of Organizational Change Management*, 10(4), pp. 345-362.
- McMaster, M. D. (1998). *Organizational intelligence. Knowledge based development. The industrial society*. Louisiana: Quid Pro Books.
- McNeish, D. (2016). Exploratory factor analysis with small samples and missing data. *Journal of Personality Assessment*, pp. 1-16. doi:10.1080/00223891.2016.1252382.
- Memon, M. A., Cheah, J. H., Ramayah, T., Ting, H., & Chuah, F. (2018). Mediation analysis: Issues and recommendations. *Journal of Applied Structural Equation Modelling*, 2(1), pp. i-ix. doi: 10.47263/JASEM.2(1)01.
- Memon, M.A., Ting, H., Cheah, J.H., Thurasamy, R., Chuah, F. & Cham, T.H (2020). Sample size for survey research: review and recommendations. *Journal of Applied Structural Equation Modeling*, 4(2), pp. i-xx. doi:10.47263/JASEM.4(2)01.
- Memon, M.A., Ting, H., Thurasamy, R., Chuah, F., & Cheah, J.H. (2017). A review of the methodological misconceptions and guidelines related to the application of structural equation modeling: A Malaysian scenario. *Journal of Applied Structural Equation Modelling*, 1 (1). i-xiii. doi:10.47263/JASEM.1(1)01.
- Meurs, J.A., & Perrewé, P.L. (2011). Cognitive activation theory of stress: An integrative theoretical approach to work stress. *Journal of Management*, 37 (4), pp. 1043-1068. doi:10.1177/0149206310387303.
- Mezzacappa, E. S., Katkin, E. S., & Palmer, S. N. (1999). Epinephrine, arousal, and emotion: A new look at two-factor theory. *Cognition and Emotion*, 13(2), pp. 181–199. doi:10.1080/026999399379320.
- Mikalef, P., Boura, M., Lekakos, G., & Krogstie, J. (2019). Big data analytics and firm performance: Findings from a mixed-method approach. *Journal of Business Research*, 98, pp. 261–276. doi:10.1016/j.jbusres. 2019.01.044.
- Mindgarden.com. (2019). *Perceived Stress Scale - Mind Garden*. [online] Available at: <https://www.mindgarden.com/132-perceived-stress-scale>.

- Ministry of Finance Malaysia (2021). *2023 Budget Speech* [online] Available at: <https://budget.mof.gov.my/ms/ucapan/>.
- Ministry of Health Malaysia (2018). *National Health and Morbidity Survey 2017: Key findings from the adolescent health and nutrition surveys* [online] Available at: <http://iku.moh.gov.my/images/IKU/Document/REPORT/NHMS2017/NHMS2017Infographic.pdf> [Accessed 18 Dec. 2020].
- Mirabedini, S.M., & Mehrabian, A. (2015). Review: Organizational intelligence and organizational learning capability. *Journal of Management Sciences*, 1 (10), pp. 228-233.
- Mohd Shaiful Azlan K, Aniza I. and Rosnah I, (2019). Review of occupational stress prevalence and its predictors among selected working populations in Malaysia. *Malaysian Journal of Public Health Medicine*, 18(2), pp. 1-6.
- Mohd Yunus, J. and Mahajar, A.J. (2011). Stress and psychological well-being of government officers in Malaysia. *The Journal of Human Resource and Adult Learning*, 7 (2), pp. 40-50.
- Montgomery, A., Panagopoulou, E., Kehoe, I. & Valkanos, E. (2011). Connecting organisational culture and quality of care in the hospital: Is job burnout the missing link?. *Journal of Health Organization and Management*, 25(1), pp.108-123. doi:10.1108/14777261111116851.
- Montgomery, A., Todorova, I., Baban, A., & Panagopoulou, E. (2013). Improving quality and safety in the hospital: the link between organizational culture, burnout, and quality of care. *British journal of health psychology*, 18(3), pp. 656–662. doi:10.1111/bjhp.12045.
- Mooghali, A.R., & Azizi, A.R. (2008). Relation between organizational intelligence and organizational knowledge management development. *World Journal of Applied Science*, 4, pp. 1-8.
- Morrel-Samuels, P. (2002). *Getting the Truth into Workplace Surveys*. [online] Harvard Business Review. Available at: <https://hbr.org/2002/02/getting-the-truth-into-workplace-surveys>.
- Morse, J. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research*, 40, pp. 120-123.
- Mostert, F.F., Rothmann, S., Mostert, K., Nell, K. (2008). Outcomes of occupational stress in a higher education institution. *S. Afr. Bus Rev.*, 12(3), pp. 102–127
- Munro L., Rodwell J., & Harding L. (1998). Assessing occupational stress in psychiatric nurses. *International Journal of Nursing Studies*, 35, pp. 339-345.
- Muslim, N., Jalil, F., Musa, N., Mokhtar, K.A., Md Khalid, R. (2015). Malaysian federalism – issues and acceptance. *Australian Journal of Sustainable Business and Society*, 1(1), 109-118.

- Najjar, H. (2019). Relational perspectives of perceived service quality in the online and offline environments: A meta-analysis. *Journal of Relationship Marketing*, pp. 1-21. doi:10.1080/15332667.2019.1664877.
- Namin, A. (2017). Revisiting customers' perception of service quality in fast food restaurants. *Journal of Retailing and Consumer Services*, 34, pp. 70–81. doi:10.1016/j.jretconser.2016.09.008.
- Napitupulu, N. (2016). Analisa kualitas layanan e-government dengan pendekatan e-govqual & IPA. *J. Penelit. Pos dan Inform*, 6,(2), pp. 153–168. doi:10.17933/jppi.2016.060203.
- Nayak, B. K., & Hazra, A. (2011). How to choose the right statistical test. *Indian Journal of Ophthalmology*, 59(2), pp. 85–86. doi:10.4103/0301-4738.77005.
- Nazarpouri, A.H., Sepahvand, R., & Feli, R. (2020). The effect of organisational and technological readiness on organisational intelligence and performance of customer relationship management through knowledge management process in knowledge-based and technology companies. *International Journal of Innovation Management*, pp. 1-28. doi:10.1142/S1363919620500760.
- Nazem, F., Chenari, H., & Hosseinzadeh, A. (2014). A structural model of organizational intelligence based on knowledge management in the technical and vocational training organization. *Advances in Environmental Biology*, 8(5), pp. 1364-1370.
- Neveu, J.P. (2007). Jailed resources: Conservation of resources theory as applied to burnout among prison guards. *Journal of Organizational Behavior*, 28(1), pp. 21–42. doi: 10.1002/job.393.
- Nezam, M.H.K., Boroujeni, N.C. & Veshaghi, M.R. (2016). Analysis of the effect of information and communication technology (ICT) on the customer attraction with mediating role of organizational intelligence: Isfahan Melli Bank as a case study. In: *2nd international conference on Management and Humanities*.
- Nezhadalilafmejani, H., Mohammad Beigi, Z., & Mohazabi, M. (2014). The impact of organizational intelligence on service quality from the perspective of social exchange theory. *UCT Journal of Social Sciences and Humanities Research*, 2(1), pp. 8-12. doi:10.24843/UJOSSH.2018.V02.I01.P02.
- Nielsen, K., Nielsen, M.B., Ogbonnaya, C., Käsälä, M., Saari, E., & Isaksson, K. (2017) Workplace resources to improve both employee well-being and performance: A systematic review and meta-analysis, *Work & Stress*, 31 (2), pp. 101-120. doi:10.1080/02678373.2017.1304463.
- Nielsen, M. G., Ørnbøl, E., Vestergaard, M., Bech, P., Larsen, F. B., Lasgaard, M., & Christensen, K. S. (2016). The construct validity of the Perceived Stress Scale. *Journal of Psychosomatic Research*, 84, pp. 22–30. doi:10.1016/j.jpsychores.2016.03.009.

- Nishant, R., Srivastava, S.C., & Teo, T.S.H. (2019). Using polynomial modeling to understand service quality in e-government websites. Thompson S. H. *MIS Quarterly*, 43 (3), pp. 807–826. doi:10.25300/MISQ/2019/12349.
- Nograšek, J., & Vintar, M. (2014). E-government and organisational transformation of government: Black box revisited? *Government Information Quarterly*, 31, pp. 108-118. doi:10.1016/j.giq.2013.07.006.
- Nonaka, I. 1994. A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), pp. 14–37.
- Nonaka, I., & Konno, N. (1998), ‘The concept of “Ba”’: Building a foundation for knowledge creation. *California Management Review*, 40, pp. 1-15.
- Nonaka, I., & Takeuchi H. (1995). *The Knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press, Inc.
- Nonaka, I., Toyama, R., & Konno, N. (2000). SECI, Ba and leadership: A unified model of dynamic knowledge creation. *Long Range Planning*, 33(1), pp. 5–34. doi:10.1016/S0024-6301(99)00115-6.
- Nonaka, I., Toyama, R., & Nagata, A. (2000). A firm as a knowledge-creating entity: a new perspective on the theory of the firm. *Industrial and Corporate Change*, 9(1), pp. 1-20. doi:10.1093/icc/9.1.1.
- Nunnally, J. (1978). *Psychometric Theory (2nd Edition)*. New York: McGraw-Hill.
- Nusair, K., & Kandampully, J. (2008). The antecedents of customer satisfaction with online travel services: A conceptual model. *European Business Review*, 20 (1), pp. 4-19. doi: 10.1108/09555340810843663.
- Ocasio, W., Rhee, L., & Boynton, D. (2020). March and the pursuit of organizational intelligence: the interplay between procedural rationality and sensible foolishness. *Industrial and Corporate Change*, 29(1), pp. 225–239. doi:0.1093/icc/dtz068.
- OECD (2003). *OECD Digital Government Studies*. [online] Available at: [https://www.oecd-ilibrary.org/governance/oecd-digital-government-studies\\_24131962](https://www.oecd-ilibrary.org/governance/oecd-digital-government-studies_24131962) [Accessed 25 May 2020].
- Ogbonnaya, C. (2019). Exploring possible trade-offs between organisational performance and employee well-being: The role of teamwork practices. *Human Resource Management Journal*, 29(3), pp. 451–468. doi:10.1111/1748-8583.12238.
- Ogbonnaya, C., & Messersmith, J. (2018). Employee performance, well-being, and differential effects of human resource management subdimensions: Mutual gains or conflicting outcomes? *Human Resource Management Journal*, 29, pp. 451–468. doi:10.1111/1748-8583.12203.



- Ogińska-Bulik, N., & Michalska, P. (2021). Psychological resilience and secondary traumatic stress in nurses working with terminally ill patients-The mediating role of job burnout. *Psychological Services*, 18(3), pp. 398–405. doi:10.1037/ser0000421.
- Oliver, R. L. (1977). "Effect of expectation and disconfirmation on postexposure product evaluations: an alternative interpretation. *Journal of Applied Psychology*, 62(4), pp. 480-486.
- Ongori, H. & Agolla, J.E. (2008). Occupational stress in organizations and its effects on organizational performance. *Journal of Management Research*, 8(3), pp. 123-135. doi:10.5296/JMR.V8I3.9554.
- Opazo-Basáez, M., Vendrell-Herrero, F. and Bustinza, O.F. (2021). Digital service innovation: a paradigm shift in technological innovation. *Journal of Service Management*, 33(1), pp.97-120. doi:10.1108/josm-11-2020-0427.
- Oreg S. (2003). Resistance to change: developing an individual differences measure. *The Journal of applied psychology*, 88(4), pp. 680–693. doi:10.1037/0021-9010.88.4.680.
- Ornelas, S. & Kleiner, B. H. (2003). New development in managing job related stress, *Journal of Equal Opportunities International*, 2(5), pp. 64-70. doi:10.1108/02610150310787504.
- Osborne, S.P. (2006). *The new public governance? Public Management Review*, 8, pp. 377-388. doi:10.1080/14719030600853022.
- Osborne, S.P. (2018). From public service-dominant logic to public service logic: Are public service organizations capable of co-production and value co-creation? *Public Management Review*, 20 (2), pp. 225-231. doi: 10.1080/14719037.2017.1350461.
- Osborne, S.P., Radnor, Z., Kinder, T., & Vidal, I. (2014). Sustainable Public Service Organisations: A Public Service-Dominant Approach. *Society and Economy*, 36(3), pp. 313-338.
- Osborne, S.P., Radnor, Z., & Nasi, G.A. (2013) New theory for public service management? Toward a (public) service-dominant approach. *American Review of Public Administration* 43(2), pp. 135 - 158. doi:10.1177/0275074012466935.
- Osborne, S.P., Radnor, Z., Kinder, T. and Vidal, I. (2014). Sustainable public service organisations: A Public Service-Dominant approach. *Society and Economy*, 36(3), pp.313–338. doi:10.1556/socec.36.2014.3.1.
- Ostrom, A.L., Bitner, M.J., Brown, S., Burkhard, K.A., Goul, M., Smith-Daniels, V., Demirkan, H., & Rabinovich, E. (2010), Moving forward and making a difference: research priorities for the science of service. *Journal of Service Research*, 13 (1), pp. 4-36. doi: 10.1177/1094670509357611.

- Pak, J., & Kim, S. (2018). Team manager's implementation, high performance work systems intensity, and performance: A multilevel investigation. *Journal of Management*, 44(7), pp. 2690–2715. doi:10.1177/0149206316646829.
- Pallant, J. (2007). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows* (3rd ed.). London: Open University Press.
- Papadomichelaki, X., & Mentzas, G. (2012). E-GovQual: A multiple-item scale for assessing e-government service quality. *Government Information Quarterly*, 29(1), pp. 98–109. doi:10.1016/j.giq.2011.08.011.
- Papadomichelaki, X., Magoutas, B., Halaris, C., Apostolou, D., & Mentzas, G. (2006). A Review of Quality Dimensions in e-Government Services. In: *International Conference on Electronic Government 2006*.
- Parasuraman, A., Zeithaml, V. & Berry, L. (1985). Conceptual model of service quality and its implications future research. *Journal of Marketing*, 49, pp. 41-50. doi:10.2307/1251430.
- Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL: A multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7, pp. 213–234. doi:10.1177/1094670504271156.
- Parasuraman, A., Zeithaml, V., & Berry, L. (1988), SERVQUAL: A multi-item scale for measuring consumer perception of service quality, *Journal of Retailing*, 64, pp. 12-40.
- Park, M.J., Dulambazar, T., Rho, J.J. (2015). The effect of organizational social factors on employee performance and the mediating role of knowledge sharing: focus on e-government utilization in Mongolia. *Information Development*, 31(1), pp. 53–68. doi: 10.1177/0266666913494908.
- Parker, D. & Decotiis, T. (1983). Organizational determinants of job stress. *Organizational Behavior and Human Performance*, 32, pp. 160-177. doi:10.1016/0030-5073(83)90145-9.
- Parker, M. (1998). Skilled Work in an Era Of Management-By-Stress. *WorkingUSA*, 2(3), pp. 56–72. doi:10.1111/j.1743-4580.1998.tb00103.x.
- Parker, M., & Slaughter, J. (1988). *Choosing sides: Unions and team concept*. Boston: South End Press.
- Parker, M., & Slaughter, J. (1995). Unions and management by stress. In: S. Babson, Ed., *Lean work: Empowerment and exploitation in the global auto industry*. Detroit: Wayne State University Press. pp. 43–53.
- Passmore, C., Dobbie, A. E., Parchman, M., & Tysinger, J. (2002). Guidelines for constructing a survey. *Family Medicine*, 34(4), pp. 281–286.

- Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Paulraj, A., Lado, A. A., & Chen, I. J. (2008). Inter-organizational communication as a relational competency: Antecedents and performance outcomes in collaborative buyer–supplier relationships. *Journal of Operations Management*, 26(1), pp. 45–64. doi:10.1016/j.jom.2007.04.001.
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social behavior*, 22(4), pp. 337-356.
- Pee, L.G., & Kankanhalli, A. (2016). Interactions among factors influencing knowledge management in public-sector organizations: A resource-based view. *Government Information Quarterly*, 33 (2016), pp. 188–199. doi:10.1016/j.giq.2015.06.002.
- Peng, D. X., & Lai, F. (2012). Using partial least squares in operations management research: A practical guideline and summary of past research. *Journal of Operations Management*, 30(6), pp. 467-480. 10.1016/J.JOM.2012.06.002.
- Perry, J.L. & Rainey, H.G. (1988). The public-private distinction in organization Theory: A critique and research strategy. *Academy of Management Review*, 13(2). pp. 182-201. doi:10.5465/amr.1988.4306858.
- Peters, L.A. and Brown, E.M. (2022). The relationship between illness identity and the self-management of Inflammatory Bowel Disease. *British Journal of Health Psychology*, 27(3), pp.956–970. doi:10.1111/bjhp.12584.
- Pestoff, V. (2006). Citizens and co-production of welfare services. *Public Management Review*, 8(4), pp. 503-519. doi:10.1080/14719030601022882.
- Pestoff, V., & Brandsen, T. (2010). Public governance and the third sector: Opportunities for co-production and innovation. In: S. Osborne, ed., *The new public governance? Emerging perspectives on the theory and practice of public governance*. Oxford: Routledge. pp. 223–236.
- Peters, M. D., Wieder, B., Sutton, S. G., & Wakefield, J. (2016). Business intelligence systems use in performance measurement capabilities: Implications for enhanced competitive advantage. *International Journal of Accounting Information Systems*, 21, pp. 1–17. doi:10.1016/j.accinf.2016.03.001.
- Peterson, R. A. (2000). *Constructing effective questionnaires*. Thousand Oaks, CA: Sage Publications.
- Phadermrod, B., Crowder, R.M. and Wills, G.B. (2019). Importance-Performance Analysis based SWOT analysis. *International Journal of Information Management*, 44(12), pp.194-203. doi:10.1016/j.ijinfomgt.2016.03.009.

- Piaget, J. (1969). *The mechanisms of perception*. New York: Basic Books Inc.
- Piehler, R., Wirtz, B. W., & Daiser, P. (2016). An Analysis of Continuity Intentions of eGovernment Portal Users. *Public Management Review*, 18(2), pp. 163–198. doi:10.1080/14719037.2014.965270.
- Pierce, J. R., & Aguinis, H. (2013). The too-much-of-a-good-thing effect in management. *Journal of Management*, 39(2), pp. 313–338. doi:10.1177/0149206311410060.
- Pitts M. & Phillips K. (1993) *The psychology of health*. London: Routledge.
- Podsakoff, N. P., LePine, J. A., & LePine, M. A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: A meta-analysis. *Journal of Applied Psychology*, 92, pp. 438–454. doi:10.1037/0021-9010.92.2.438.
- Podsakoff, P. M., Mackenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63, pp. 539–569. doi:0.1146/annurev-psych-120710-100452.
- Podsakoff, P. M., Mackenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), pp. 879–903. doi:10.1037/0021-9010.88.5.879.
- Potipiroon, W., & Faerman, S. (2020). Tired from working hard? Examining the effect of organizational citizenship behavior on emotional exhaustion and the buffering roles of public servstenvaice motivation and perceived supervisor support. *Public Performance & Management Review*, 43(6), pp. 1260-1291. doi: 10.1080/15309576.2020.1742168.
- Price, A., Mansfield, C., & Mcconney, A. (2012). Considering “teacher resilience” from critical discourse and labour process theory perspectives. *British Journal of Sociology of Education*, 33(1), pp. 81–95. doi:10.1080/01425692.2011. 614748.
- Prime Minister’s Department of Malaysia (2020). *Ahli-ahli Jemaah Menteri*. [online] Available at: <http://www.kabinet.gov.my/bkpp/index.php/anggota-pentadbiran/menteri> [Accessed 7 Sept. 2020].
- Prime Minister's Office of Malaysia (2020). *Teks Ucapan: Pelan Jana Semula Ekonomi Negara (PENJANA)*. [online] Available at: <https://www.pmo.gov.my/2020/06/teks-ucapan-pelan-jana-semula-ekonomi-negara-penjana> [Accessed 17 Sept. 2020].
- Public Service Department of Malaysia (2022). *Indeks Kesejahteraan Psikologi Malaysia*. [online] Indeks Kesejahteraan Psikologi Malaysia. Available at: <https://ikpm.jpa.gov.my/>.
- Qasem, M., & Zolait, A.H. (2016). Determinants of behavioral intentions towards using e-government services in the Kingdom of Bahrain. *International Journal of Computing and Digital Systems*, 5 (4), pp. 345-354. doi:10.12785/IJCDS/050406.

- Qureshi, H.A., Salman, Y., Irfan, S., & Jabeen, N. (2017). A systematic review of e-government evaluation. *Pakistan Economic and Social Review*, 55(2), pp. 355-390.
- Rabiah, Y., Nor Akmar, N., & Siti Aisyah, P. (2020). Job demands and resources on work stress among banking employees. *International Journal of Psychosocial Rehabilitation*, 24(5), pp. 2578-2584. doi:10.37200/IJPR/V24I5/PR201957.
- Ramakrishnan, S., Wong, M.S., Chit, M.M. and Mutum, D.S. (2022). A conceptual model of the relationship between organisational intelligence traits and digital government service quality: the role of occupational stress. *International Journal of Quality & Reliability Management*, 39(6), pp.1429–1452. doi:10.1108/ijqrm-10-2021-0371.
- Ramayah, T., Jacky, C., Chuah, F., Ting, H., & Memon, M. A. (2018). *Partial least squares structural equation modeling (PLS-SEM) using SmartPLS 3.0. Handbook of market research* (2nd ed.). Kuala Lumpur: Pearson Malaysia Sdn Bhd.
- Rasyid, A., & Alfina, I. (2017). E-service quality evaluation on e-government website: Case study BPJS Kesehatan Indonesia. *Journal of Physics: Conference Series*, 801(1), pp. 1-6. doi:10.1088/1742-6596/801/1/012036.
- Rautakivi, T. (2013, May). Organizational intelligence, efficacy and adaptability in changing environment. In: *2013 International Conference on Public Management (ICPM-2013)*.
- Reise, S. P., Waller, N. G., & Comrey, A. L. (2000). Factor analysis and scale revision. *Psychological Assessment*, 12, pp. 287-297. doi:10.1037//1040-3590.12.3.287.
- Reyes, L.F.L, Garcia, R.G., & Romero, G. (2012). Towards a multidimensional model for evaluating electronic government: Proposing a more comprehensive and integrative perspective. *Government Information Quarterly*, 29, pp. 324–334. doi:10.1016/j.giq.2012.03.001.
- Richter, N.F., Cepeda Carrion, G., Roldán, J.L. & Ringle, C.M. (2016). European management research using partial least squares structural equation modeling (PLS-SEM): editorial. *European Management Journal*, 34 (6), pp. 589-597. doi: 10.1016/j.emj.2014.12.001.
- Riezebos, J. & Huisman, B. (2021), Value stream mapping in education: addressing work stress. *The International Journal of Quality and Reliability Management*, 38 (4), pp. 1044-1061.
- Rigdon, E.E. (2012). Rethinking partial least squares path modelling: In praise of simple method. *Long Range Planning*, 45 (5/6), pp. 341-358. doi: 10.1016/j.lrp.2012.09.010.
- Rigdon, E.E. (2013). Partial least squares path modelling. In: G.R. Hancock, & R.O. Mueller, eds., *Structural equation modelling. A second course (2nd ed.)*. Information Age Publishing. pp. 81-116.
- Rigdon, E.E. (2014). Comment on improper use of endogenous formative variables. *Journal of Business Research*, 67 (1), pp. 2800-2802. doi:10.1016/j.jbusres.2012.08.005.

- Ringle, C. M., Sarstedt, M., & Straub, D. W. (2012). A critical look at the use of PLS-SEM in MIS quarterly. *MIS Quarterly*, 36(1), pp. iii–xiv. doi:10.2307/41410402.
- Ringle, C. M., Wende, S., & Becker, J.M. (2015). SmartPLS 3. Boenningstedt: SmartPLS GmbH. <http://www.smartpls.com>.
- Ringle, C.M., & Sarstedt, M. (2016). Gain more insight from your PLS-SEM results: The importance-performance map analysis. *Industrial Management & Data Systems*, 116 (9), pp. 1865-1886. doi:10.1108/IMDS-10-2015-0449.
- Rizeanu, S., & Teodor, M. (2015). A correlative study between pain perception at the doctor and the level of self-perceived stress at undergraduate students at psychology – A pilot study. *Procedia - Social and Behavioral Sciences*, 187, pp. 719-722. doi.org/10.1016/j.sbspro.2015.03.134.
- Robinson, M. A. (2018). Using multi-item psychometric scales for research and practice in human resource management. *Human Resource Management*, 57(3), pp. 739–750. doi:10.1002/hrm.21852.
- Robson, I. A. (2003). Creating the future using intelligent systems. *Public Performance & Management Review*, 26(3), pp. 291–301. doi:10.1177/ 1530957602250235.
- Rocha, I. (2012). Framework for a global quality evaluation of a website. *Online Information Review*, 36 (3), pp. 374-382. doi:10.1108/14684521211241404.
- Rodriguez, C.F., & Choudrie, J. (2021). The impact of different organizational environments on technostress: Exploring and understanding the bright and dark sides before and during Covid-19. In: *UK Academy for Information Systems Conference Proceedings 2021*.
- Rose, J., Göbel, J.H., Cronholm, J.H., Holgersson, J.H., Söderström, J.H., & Hallqvist, J.H. (2019). Theory-Based Design Principles for Digital Service Innovation. *e-Service Journal*, 11, pp. 1-30. doi:10.2979/ESERVICEJ.11.1.01.
- Rothaermel, F.T. (2013). *Strategic management*. New York: McGraw-Hill International.
- Rothbard, N. P., & Wilk, S. L. (2011). Waking up on the right or wrong side of the bed: Start-of-workday mood, work events, employee affect, and performance. *Academy of Management Journal*, 54(5), pp. 959-980. doi: 10.5465/amj.2007.0056.
- Rothberg, H.N., & Erickson, G.S. (2004). *From knowledge to intelligence: Creating competitive advantage in the next economy*. Oxford: Elsevier Butterworth-Heinemann.
- Rowley, J. (2006). An analysis of the e-service literature: Towards a research agenda. *Internet Research*, 16 (3), pp. 339-359. doi:10.1108/10662240610673736.
- Rubio, D. M., Berg-Weger, M., Tebb, S. S., Lee, E. S., & Rauch, S. (2003). Objectifying content validity: Conducting a content validity study in social work research. *Social Work Research*, 27(2), pp. 94–104. doi:10.1093/swr/27.2.94.

- Ruel, E., Wagner III, W., & Gillespie, B. (2016). *The practice of survey research*. Thousand Oaks, CA: SAGE Publications, Inc.
- Rungtusanatham, M., Miller, J. W., & Boyer, K. K. (2014). Theorizing, testing, and concluding for mediation in SCM research: Tutorial and procedural recommendations. *Journal of Operations Management*, 32(3), pp. 99–113. doi:10.1016/j.jom.2014.01.002.
- Ruotsalainen, J.H., Verbeek, J.H., Mariné, A., & Serra, C. (2014). Preventing occupational stress in healthcare workers. *The Cochrane Database of Systematic Reviews*.12, pp. 1-5. doi: 10.1002/14651858.CD002892.pub4.
- Rust, R.T., & Lemon, K.N. (2001). E-service and the consumer. *International Journal of Electronic Commerce*, 5 (3), pp. 85-101. doi: 10.1080/10864415.2001.11044216.
- Ruyter K, Wetzels M., & Kleijnen M. (2001). Customer adoption of e-service: An experimental study. *International Journal of Service Industry Management*, 12 (2), pp. 184-207. doi:10.1108/095642301110387542.
- Sá, F., Rocha, A., Cota, M.P. (2016). Potential dimensions for a local e-government services quality model. *Telematics and Informatics*, 33, pp. 270–276. doi:10.1016/j.tele.2015.08.005.
- Saanan, Y.A., Sol, H.G., & Verbraeck, A. (1999), Snapshots of e-commerce's opportunities and threats. *Electronic Markets*, 9 (3), pp. 181-189.
- Sadq, Z.M., & Othman, B. (2019). The impact of the quality of work life on organizational intelligence. *International Journal of Psychosocial Rehabilitation*, 23(2), pp. 931-946. doi:10.37200/IJPR/V23I2/PR190341.
- Sagar, M. (2020, May 22). *COVID-19 pandemic has spurred government digitalisation*. [online] Available at: <https://www.opengovasia.com/covid-19-pandemic-has-spurred-government-digitalisation/> [Accessed 18 Jan. 2022].
- Samad, N., Hashim, Z., Moin, S., & Abdullah, H. (2010). Assessment of Stress and Its Risk Factors among Primary School Teachers in the Klang Valley, Malaysia. *Global Journal of Health Science* 2(2): pp. 163 – 171. doi:10.3844/ajassp.2010.634.639.
- Samadzadeh, M. (2013). Investigating the effect of work stress, general health quality, organizational intelligence and job satisfaction on employee performance. *Management Science Letters*, 3(12), pp. 2989–2994. doi:10.5267/j.msl.2013.10.023.
- Santos, J. (2003). E-service quality: A model of virtual service quality dimensions. *Managing Service Quality*, 13(3), pp. 233-246. doi:10.1108/09604520310476490.
- Saputra, R., Suprpto, S., & Rachmadi, A. (2017). Penilaian kualitas layanan e-government dengan pendekatan dimensi e-govqual dan importance performance analysis (IPA) (studi

- kasus pada pemerintah provinsi Nusa Tenggara Barat). *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer*, 2(5), pp. 1794-1802.
- Sarstedt, M. and Mooi, E.A. (2019). *A Concise Guide to Market Research: The Process, Data, and Methods Using IBM SPSS Statistics*. Berlin: Springer.
- Sarstedt, M., Hair, J.F., Cheah, J.-H., Becker, J.-M. and Ringle, C.M. (2019). How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian Marketing Journal (AMJ)*, 27(3), pp.197–211. doi:10.1016/j.ausmj.2019.05.003.
- Sarstedt, M., Ringle, C.M., Henseler, J. & Hair, J.F. (2014), “On the emancipation of PLS-SEM: A commentary on Rigdon (2012). *Long Range Planning*, 47(3), pp. 154-160. doi:10.1016/j.lrp.2014.02.007.
- Sayin, E., & Okursoy, A. (2013). Assessing e-government service quality model and an application: An example of municipality of Nazilli. *International Journal of eBusiness and eGovernment Studies*, 5(2), pp. 34-47.
- Schachter, S., & Singer, J. (1962). Cognitive, social, and physiological determinants of emotional state. *Psychological Review*, 69, pp. 379-399.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, pp. 293–315. doi:10.1002/job.248.
- Schaufeli, W., Bakker, A. & Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior*, 30 (7), pp. 893–917. doi.org/10.1002/job.595.
- Schmidt, J. M. (2015). Policy, planning, intelligence and foresight in government organizations. *Foresight*, 17(5), pp. 489–511. doi:10.1108/FS-12-2014-0081.
- Schoonenboom, J., & Johnson, R.B. (2017). How to construct a mixed methods research design. *Köln Z Soziol (Suppl 2)*, 69, pp. 107–131. doi:10.1007/s11577-017-0454-1.
- Schwaninger, M. (2001). Intelligent organizations: An integrative framework. *Systems Research and Behavioral Science*, 18, pp. 137-158. doi:10.1002/sres.408.
- Schwaninger, M. (2019). Governance for intelligent organizations: a cybernetic contribution. *Kybernetes*, 48(1), pp. 35–57. doi:10.1108/K-01-2018-0019.
- Schwepker, C.H., & Dimitriou, C.K. (2021). Using ethical leadership to reduce job stress and improve performance quality in the hospitality industry. *International Journal of Hospitality Management*, 94, pp. 1-11. doi:10.1016/j.ijhm.2021.102860.



- Scott, M., DeLone, W., & Golden, W. (2016). Measuring e-Government success: A public value approach. *European Journal of Information Systems*, 25 (3), pp. 187-208. doi: 10.1057/ejis.2015.11.
- Sekaran, U. and Bougie, R. (2010). *Research methods for business: A skill building approach* (5th ed.). Haddington: John Wiley & Sons Ltd.
- Selye H. (1956). *The stress of life*. New York: McGraw-Hill.
- Selye, H. (1955). Stress and disease. *Science*, 122, pp. 625-631.
- Selye, H. (1976). *The stress of life* (2<sup>nd</sup> ed.). New York: McGraw-Hill.
- Senge, P. M. (1990). *The fifth discipline*. New York: Doubleday.
- Senge, P. M. (2006). *The fifth discipline: The art and practice of the learning organization*. In *The 5th discipline*. New York: Doubleday/Currency.
- Seo, I., Kim, Y., & Choi, J. (2018). Assessment of efficiency in public service—focused on Government 3.0 case in Korea. *Total Quality Management and Business Excellence*, 29(9–10), pp. 1161–1184. doi:10.1080/14783363.2018.1487596
- Serpa, L.F. (2000), Epistemological assessment of current business intelligence archetypes. *Competitive Intelligence Review*, 11(4), pp. 88-101. doi:10.1002/1520-6386(200034)11:4<88::AID-CIR12>3.0.CO;2-8 .
- Sessa, V. (2004). The power of minds at work: Organizational intelligence in action. *Personnel Psychology*, 57(4), pp. 1071-1073.
- Shah, A. U. M., Safri, S. N. A., Thevadas, R., Noordin, N. K., Rahman, A. A., Sekawi, Z., Sultan, M. T. H. (2020). COVID-19 Outbreak in Malaysia: Actions Taken by the Malaysian Government. *International Journal of Infectious Diseases*. 97, pp. 108–116. doi:10.1016/j.ijid.2020.05.093.
- Shaiful Azlan, K., Rosnah, I., Mohd Rizal, A.M. (2017). Systematic review of organization stressors as predictors for job stress and burnout among university academicians in Malaysia. *International Journal of Public Health and Clinical Sciences*, 4 (3), pp. 35-46
- Shalley, C., Gilson, L., & Blum, T. (2009). Interactive effects of growth need strength, work context, and job complexity on self- reported creative performance. *Academy of Management Journal*, 52, pp. 489–505. doi:10.5465/AMJ.2009.41330806.
- Shareef, M.A., Archer, N., & Dwivedi, Y.K. (2015). An empirical investigation of electronic government service quality: From the demand-side stakeholder perspective. *Total Quality Management & Business Excellence*, 26(3-4), pp. 339-354. doi:10.1080/14783363.2013.832477.

- Shaw C. (1999) A framework for the study of coping. *Journal of Advanced Nursing*, 29, pp. 1246-55.
- Shea, T., De Cieri, H. and Deeble, M. (2011). *Workplace stress evaluation tools: A Snapshot Review*. [online] Available at: [https://research.iscrr.com.au/data/assets/pdf\\_file/0011/297758/Workplace-stress-evaluation-tools-snapshot.pdf](https://research.iscrr.com.au/data/assets/pdf_file/0011/297758/Workplace-stress-evaluation-tools-snapshot.pdf).
- Shin, D., & Konrad, A. M. (2017). Causality between high-performance work systems and organizational performance. *Journal of Management*, 43(4), pp. 973–997. doi:10.1177/0149206314544746.
- Shirom, A. (1989). Burnout in work organizations. In: C. L. Cooper & I. T. Robertson eds., *International review of industrial and organizational psychology*. New York: John Wiley and Sons. pp. 25–48.
- Shkeer, A.S., & Awang, Z. (2019). Exploring items for measuring marketing information system construct: An exploratory factor analysis. *International Review of Management and Marketing*, 9(6), pp. 87-97. doi:10.32479/irmm.8622.
- Shmueli, G. & Koppius, O.R. (2011). Predictive analytics in information systems research. *MIS Quarterly*, 35 (3), pp. 553-572. doi:10.2139/ssrn.1606674.
- Shmueli, G. (2010), To explain or to predict?. *Statistical Science*, 25 (3), pp. 289-310. doi:10.1214/10-STS330.
- Shmueli, G., Ray, S., Velasquez Estrada, J.M. & Shatla, S.B. (2016). The elephant in the room: Evaluating the predictive performance of PLS models. *Journal of Business Research*, 69 (10), pp. 4552-4564. doi:10.1016/j.jbusres.2016.03.049.
- Shmueli, G., Sarstedt, M., Hair, J.F., Cheah, J., Ting, H., Vaithilingam, S., & Ringle, C. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing*, 53, pp. 2322-2347. doi:10.1108/EJM-02-2019-0189.
- Shrout, P.E. (2011) Commentary: Mediation analysis, causal process, and cross-sectional data. *Multivariate Behavioral Research*, 46(5), pp. 852-860. doi:10.1080/00273171.2011.606718
- Shukla, A. and Srivastava, R. (2016). Development of short questionnaire to measure an extended set of role expectation conflict, coworker support and work-life balance: The new job stress scale. *Cogent Business & Management*, 3(1). doi:10.1080/23311975.2015.1134034.
- Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology*, 1, pp. 27–41.
- Siemsen, E., Roth, A. and Oliveira, P. (2010). Common Method Bias in Regression Models With Linear, Quadratic, and Interaction Effects. *Organizational Research Methods*, 13(3), pp.456–476. doi:10.1177/1094428109351241.

- Sigala, M. (2004). The ASP-Qual model: Measuring ASP service quality in Greece. *Managing Service Quality*, 14 (1), pp. 103-114. doi:10.1108/09604520410513703.
- Silber, K.H. & Kearny, Lynn (2010). *Organizational intelligence: A guide to understanding the business of your organization for HR, training, and performance consulting*. San Francisco, Ca: John Wiley & Sons, Inc.
- Skinner, B.F. (1937). Two Types of Conditioned Reflex: A Reply to Konorski and Miller. *The Journal of General Psychology*, 16(1), pp.272–279. doi:10.1080/00221309.1937.9917951.
- Smelser, N.J. (2015). Sources of Unity and Disunity in Sociology. *The American Sociologist*, 46(3), pp.303–312. doi:10.1007/s12108-015-9260-2.
- Smith, A. G. (2001). Applying evaluation criteria to New Zealand government websites. *International Journal of Information Management*, 21, pp. 137–149. doi:10.1016/S0268-4012(01)00006-8.
- Sobel, M. E. (1986). Some new results on indirect effects and their standard errors in covariance structure models. In: N. Tuma ed., *Sociological Methodology 1986*. Washington: American Sociological Association. pp. 159-186.
- Sobel, M.E., (1982). Asymptotic confidence intervals for indirect effects and their standard errors in structural equation models. *Sociological Methodology*, 13, pp. 290–312.
- Sohrabi, R., & Asari, M. (2014). Relationship between workforce agility and organizational intelligence (Case study: The companies of Iran high council of informatics). *Asian Social Science*, 10 (4), pp. 279-287. doi:10.5539/ass.v10n4p279.
- Soltani, Z., Zarele, B., Rajabiun, L., & Fashami, A. (2019). The effect of knowledge management, e-learning systems and organizational learning on organizational intelligence. *Kybernetes: The International Journal of Systems & Cybernetics*, 49 (10), pp. 2455-2474. doi:10.1108/K-12-2018-0672.
- Somech, A., & Drach-Zahavy, A. (2004). Exploring organizational citizenship behaviour from an organizational perspective: The relationship between organizational learning and organizational citizenship behaviour. *Journal of Occupational and Organizational Psychology*, 77(3), pp. 281–298. doi:10.1348/0963179041752709.
- Song, S., Nerur, S., & Teng, J. T. (2007). An exploratory study on the roles of network structure and knowledge processing orientation in work unit knowledge management. *ACM SIGMIS Database*, 38(2), pp. 8–26. doi: 10.1145/1240616.1240620.
- Sonnentag, S. (2003). Recovery, work engagement, and proactive behaviour: a new look at the interface between nonwork and work. *Journal of Applied Psychology*, 88 (3), pp. 518–528. doi: 10.1037/0021-9010.88.3.518.

- Špaček, D., & Malý, I. (2010). E-Government evaluation and its practice in the Czech Republic: Challenges of synergies. *The NISPAcee Journal of Public Administration and Policy*, 3(1), pp. 93-124.
- Spathis, C., Pteridou, E., & Glaveli, N. (2004). Managing service quality in banks: customers' gender effects. *Managing Service Quality*, 14(1), pp. 90–102. doi:10.1108/09604520410513695.
- Spender, J. C., & Grant, R. M. (1996). Knowledge and the firm: *Overview*. *Strategic Management Journal*, 17(S2), pp. 5–9.
- Spielberger, C.D., & Vagg, P.R. (1999). Job stress survey: Professional manual. Odessa, FL: Psychological. Assessment Resources.
- Sree Lekshmi, S.N. (2020). *Analysis of the impact of organisational culture on occupational stress: The role of job satisfaction in it SMEs in India and the UK*. PhD Thesis.
- Srivastava, S.C., & Teo, T.S.H. (2006). Determinants and impact of e-government and e-business development: A global perspective. In: *Proceedings of the Twenty-Seventh International Conference on Information Systems*.
- Stalinski, S. (2004). Organizational intelligence: a systems perspective. *Organization Development Journal*, 22 (2), pp. 55-67.
- Stamenkov, G., & Dika, Z. (2015). A sustainable e-service quality model. *Journal of Service Theory and Practice*, 25 (4), pp. 414-442. doi:10.1108/JSTP-09-2012-0103.
- Stangor, C. (2015). *Research methods for the behavioral sciences* (5th ed.). South Melbourne, Vic.: Cengage Learning.
- Staw, B. M., & Barsade, S. G. (1993). Affect and managerial performance: A test of the sadder-but-wiser vs. happier-and-smarter hypotheses. *Administrative Science Quarterly*, 38, pp. 304-331.
- Stenvall, J. & Virtanen, P.(2017). Intelligent public organisations. *Public Organiz Rev*, 17, pp. 195–209. doi:10.1007/s11115-015-0331-1.
- Stiakakis, E., & Georgiadis, C. K. (2009). E-service quality: Comparing the perceptions of providers and customers. *Managing Service Quality*, 19(4), pp. 410–430. doi:10.1108/09604520910971539.
- Stone-Romero, E. F., & Rosopa, P. J. (2011). Experimental tests of mediation models: Prospects, problems, and some solutions. *Organizational Research Methods*, 14(4), pp. 631–646. doi:10.1177/1094428110372673.
- Strauss, G. (1968). Human relations – 1968 style. *Industrial Relations*, 7, pp. 262-276.

- Strijbos, J.-W., Martens, R.L., Jochems, W.M.G. and Broers, N.J. (2007). The effect of functional roles on perceived group efficiency during computer-supported collaborative learning: a matter of triangulation. *Computers in Human Behavior*, 23(1), pp.353–380. doi:10.1016/j.chb.2004.10.016.
- Stulova, V. and Rungi, M. (2017). Untangling the mystery of absorptive capacity: A process or a set of success factors? *The Journal of High Technology Management Research*, 28(1), pp.110–123. doi:10.1016/j.hitech.2017.04.008.
- Subramony, M. (2009). A meta-analytic investigation of the relationship between HRM bundles and firm performance. *Human Resource Management*, 48 (5), pp. 745–768. doi:10.1002/hrm.20315.
- Sullivan, H., & Skelcher, C. (2002). *Working across boundaries: Collaboration in public services*. Basingstoke: Palgrave Macmillan.
- Sun, L.-Y., & Pan, W. (2008). HR practices perceptions, emotional exhaustion, and work outcomes: A conservation-of-resources theory in the Chinese context. *Human Resource Development Quarterly*, 19(1), pp. 55–74. doi: 10.1002/hrdq.1225.
- Sundbo, J. (2015). From service quality to experience – and back again? *International Journal of Quality and Service Sciences*, 7 (1), pp. 107-119. doi:10.1108/IJQSS-01-2015-0009.
- Surjadjaja, H., Ghosh, S., & Antony, J. (2003). Determining and assessing the determinants of e-service operations. *Managing Service Quality: An International Journal*, 13 (1). pp. 39-53. doi:10.1108/09604520310456708.
- Syed A. Kadir, S.L. (2016). E-Procurement Service Quality in Malaysia. *Asean Marketing Journal*, 8 (2), pp. 116-127. doi:10.21002/amj.v8i2.9262.
- Syed, F., Naseer, S., & Bouckenooghe, D. (2020). Unfairness in stressful job environments: The contingent effects of perceived organizational injustice on the relationships between job stress and employee behaviors. *Journal of General Psychology*, 148 (2), pp. 1-24. doi:10.1080/00221309.2020.1747968.
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5). Boston, MA: Pearson.
- Tailab, M. M. K. (2020). Using Importance-Performance Matrix Analysis to evaluate the financial performance of American banks during the financial crisis. *SAGE Open*, 10(1), pp. 1-17. doi:10.1177/2158244020902079.
- Tan, C., Benbasat, I. & Cenfetelli, R. (2013). IT-mediated customer service content and delivery in electronic governments: an empirical investigation of the antecedents of service quality. *MIS Quarterly*, 37(1), pp. 77-109.
- Teddle, C., & Yu, F. (2007). Mixed methods sampling: A typology with examples. *Journal of Mixed Methods Research*, 1 (1), pp. 77-100. doi:10.1177/2345678906292430.

- Tinline, G. and Crowe, K. (2010). Improving employee engagement and wellbeing in an NHS trust. *Strategic HR Review*, 9(2), pp.19–24. doi:10.1108/14754391011022226.
- Tongchaiprasit, P., & Ariyabuddhiphongs, V. (2016). Creativity and turnover intention among hotel chefs: The mediating effects of job satisfaction and job stress. *International Journal of Hospitality Management*, 55, pp. 33–40. doi:10.1016/j.ijhm.2016.02.009.
- Topper, E. F. (2007). Stress in the library workplace. *Journal of New Library*, 108 (11/12), pp. 561-564. doi: 10.1108/03074800710838290.
- Torkamani, B. & Maymand, M.M. (2016). Investigation of the relationship between organizational intelligence and strategic thinking and determination of its role in creation of a mindful organization: A case study research. *Mediterranean Journal of Social Sciences*, 7(3), pp. 79-85. doi:10.5901/mjss.2016.v7n3s2p79.
- Torres, L., Pina, V., & Royo, S. (2005). E-government and the transformation of public administrations in EU countries: Beyond NPM or just a second wave of reforms? *Online Information Review*, 29(5), pp. 531-553.
- Travica, B. (2015). Modelling organizational intelligence: Nothing googles like Google. *Online Journal of Applied Knowledge Management*, 3 (2), pp. 1-18.
- Trischler, J. and Westman Trischler, J. (2021). Design for experience – a public service design approach in the age of digitalization. *Public Management Review*, pp.1–20. doi:10.1080/14719037.2021.1899272.
- Tsang, E.W.K. (2016). *The philosophy of management research*. London: Routledge.
- United Nations (2014). *United Nations Maintenance Page*. [online] Available at: <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2014>.
- United Nations (2018). *UN E-Government Survey 2018*. [online] Available at: <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018>.
- United Nations (2020). *2020 United Nations E-Government Survey | Multimedia Library - United Nations Department of Economic and Social Affairs*. [online] [www.un.org](http://www.un.org). Available at: <https://www.un.org/development/desa/publications/publication/2020-united-nations-e-government-survey>.
- United Nations. (2022). *UN E-Government Survey 2022*. [online] Available at: <https://desapublications.un.org/publications/un-e-government-survey-2022>.
- Ursin, H., & Eriksen, H. (2004). The cognitive activation theory of stress. *Psychoneuroendocrinology*, 29(5), pp. 567–592. doi:10.1016/S0306-4530(03)00091-X.

- Vagg, P. R., & Spielberger, C. D. (1999). The Job Stress Survey: Assessing perceived severity and frequency of occurrence of generic sources of stress in the workplace. *Journal of Occupational Health Psychology*, 4(3), pp. 288–292. doi:10.1037/1076-8998.4.3.288.
- Van de Voorde, K., Veld, M., & van Veldhoven, M. (2016). Connecting empowerment focused HRM and labour productivity to work engagement: The mediating role of job demands and resources. *Human Resource Management Journal*, 26 (2), pp. 192–210. doi:10.1111/1748-8583.12099.
- van Driel, M. and Gabrenya, W.K. (2012). Organizational Cross-Cultural Competence. *Journal of Cross-Cultural Psychology*, 44(6), pp.874–899. doi:10.1177/0022022112466944.
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(1), pp. 1–17. doi:10.1509/jmkg.68.1.1.24036.
- Vargo, S. L., & Lusch, R. F. (2006). Service-dominant logic: What it is, What it is not, what it might be. In: R.F. Lusch and S.L. Vargo, eds., *The service-dominant logic of marketing: dialog, debate, and directions*. New York: M.E. Sharpe. pp. 43–56.
- Vargo, S.L., & Lusch, R.F. (2008). Service-dominant logic: Continuing the evolution. *Journal of the Academy of Marketing Science*, 36 (1), pp. 1-10. doi: 10.1007/s11747-007-0069-6.
- Veryard, R. (2018). *Building organizational intelligence*. British Columbia: LeanPub.
- Viegas, V., & Henriques, J. (2021). Job stress and work-family conflict as correlates of job satisfaction among police officials. *J Police Crim Psych*, 36, pp. 227–235. doi:10.1007/s11896-020-09388-w.
- Virtanen, P., & Vakkuri, J. (2015). Searching for organizational intelligence in the evolution of public-sector performance management. *NISPAcee Journal of Public Administration and Policy*, 8(2), pp. 89–99. doi:10.1515/nispa-2015-0010.
- Visentin, D.C., Cleary, M. and Hunt, G.E. (2019). The earnestness of being important: Reporting non-significant statistical results. *Journal of Advanced Nursing*, 76(4), pp.917–919. doi:10.1111/jan.14283.
- Visvizi, A., & Lytras, M. (2020). Editorial: Covid-19 transforms the government: Here’s what to look at. *Transforming Government: People, Process and Policy*, 14 (2), pp. 125-131. doi:10.1108/TG-05-2020-128.
- Vogt, K., Hakanen, J.J., Brauchli, R., Jenny, G.J. and Bauer, G.F. (2015). The consequences of job crafting: a three-wave study. *European Journal of Work and Organizational Psychology*, 25(3), pp.353–362. doi:10.1080/1359432x.2015.1072170.

- Von Bertalanffy, L. (1972). The model of open systems: beyond molecular biology. *Biology, History and Natural Philosophy*, pp. 17–30. doi:10.1007/978-1-4684-1965-8\_2.
- Voss, C. (1999). *Trusting the internet: Developing an E-service Strategy*. Colchester: Institute of Customer Service.
- Wan Yusoff, W.Z., Ismail, M. & Ali, A.S. (2010). Understanding the service provider perspective towards better service quality in local authorities. *Journal of Facilities Management*, 8 (3), pp. 226-238. doi:10.1108/14725961011058857.
- Wang, P., Zhu, F. W., Song, H. Y., Hou, J. H., & Zhang, J. L. (2018). Visualizing the academic discipline of knowledge management. *Sustainability (Switzerland)*, 10(3), pp. 682. doi:10.3390/su10030682.
- Warr, P, Cook, J., & Wall, T. (1979). Scales for the measurement of some work attitudes and aspects of psychological well-being. *Journal of Occupational Psychology*, 52, pp. 129–48.
- Waseda – IAC (2020). *Waseda–IAC World Digital Government Rankings*. [online] International Academy of CIO. Available at: <https://iacio.org/wasada-iac-world-e-government-ranking/> [Accessed 11 May 2022].
- Watson, J., & Hill, A. (1993). *A dictionary of communications and media studies*. London: Edward Arnold.
- Webb, D. A., Sweet, D., & Pretty, A. (2002). The emotional and psychological impact of mass casualty incidents on forensic odontologists. *Journal of Forensic Sciences*, 47(3), pp. 539-541.
- Weber, E. H. (1978). *The sense of touch* (1st ed.). London: Academic Press
- Weijters, B., Cabooter, E., & Schillewaert, N. (2010). The effect of rating scale format on response styles: The number of response categories and response category labels. *International Journal of Research in Marketing*, 27(3), pp. 236–247. doi:10.1016/j.ijresmar.2010.02.004.
- Weisbord, M. (1976). Organizational diagnosis: Six places to look for trouble with or without a theory. *Group & Organization Studies*, 1, pp. 430-447.
- West, C.P., Dyrbye, L.N., Erwin, P.J. and Shanafelt, T.D. (2016). Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. *The Lancet*, [online] 388(10057), pp.2272–2281. doi:10.1016/s0140-6736(16)31279-x.
- Wetzels, M., Odekerken-Schroder, G., & van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS Quarterly*, 33(1), pp. 177-196. doi: 10.2307/20650284.



- Wijatmoko and Siregar (2019). Evaluation of IT service management (ITSM) using e-GovQual dimensions case study regional office Ministry of Law and Human Rights. *International Journal on Informatics for Development*, 8(2), pp. 55-63. doi:10.14421/ijid.2019.08202.
- Wilensky, H. (1967). *Organizational intelligence: Knowledge and policy in government and industry*. New York: Basic Books.
- Williams, A., & Cooper, C. (1998). Measuring occupational stress: Development of the Pressure Management Indicator. *Journal of Occupational Health Psychology* 3, pp. 306-321.
- Wilson, J. (2010). *Essentials of business research: A guide to doing your research project*. Thousand Oaks, Ca: Sage Publications
- Winter, D. G., & Stewart, A. J. (1977). Power motive reliability as a function of retest instructions. *Journal of Consulting and Clinical Psychology*, 45, pp. 436-440.
- Wong, M. S. (2019). Design science approach to build a customer satisfaction theoretical framework to evaluate e-government services. *The Electronic Journal of Information Systems Evaluation*, 22(1), pp. 54-64.
- Wong, M. S., & Jackson, S. (2018). User satisfaction evaluation of Malaysian e-government education services. In: *2017 International Conference on Engineering, Technology and Innovation: Engineering, Technology and Innovation Management Beyond 2020: New Challenges, New Approaches, ICE/ITMC 2017*.
- Wood, S., Ghezzi, V., Barbaranelli, C., Di Tecco, C., Fida, R., Farnese, M. L., Ronchetti, M., & Iavicoli, S. (2019). Assessing the risk of stress in organizations: Getting the measure of organizational-level stressors. *Frontiers in Psychology*, 10 (2776). doi:0.3389/fpsyg.2019.02776.
- Wood, S., van Veldhoven, M., Croon, M., & De Menezes, L. (2012). Enriched job design, high involvement management and organizational performance: the mediating role of job satisfaction and well-being. *Human Relations*, 65 (4), pp. 419-445. doi: 10.1177/0018726711432476.
- Wood, S., Van Veldhoven, M., Croon, M., & de Menezes, L. M. (2012). Enriched job design, high involvement management and organizational performance: The mediating roles of job satisfaction and well-being. *Human Relations*, 65(4), pp. 419-445. doi:10.1177/0018726711432476.
- World Health Organization (1946). *Constitution of the World Health Organization*. [online] www.who.int. Available at: <https://www.who.int/about/governance/constitution#:~:text=Health%20is%20a%20state%20of>.
- World Health Organization. (2018). *Global status report on road safety 2018*. [online] Available at: [https://www.who.int/violence\\_injury\\_prevention/road\\_safety\\_status/2018/en/](https://www.who.int/violence_injury_prevention/road_safety_status/2018/en/) [Accessed 7 Mar. 2019].

- Yaghoubi, N. M., Kord, B., & Shakeri, R. (2010). E-government services and user acceptance: the unified models' perspective. *European Journal of Economics, Finance and Administrative Sciences*, 24, pp. 36-49.
- Yaghoubi, N., ElhamBehtarinejad, Gholami, S., & Armesh, H. (2012). The relationship between strategic processes of knowledge management and organizational intelligence. *African Journal of Business Management*, 6, pp. 2626-2633. doi:10.5897/AJBM11.1398.
- Yankelevich, M., Broadfoot, A., Gillespie, J.Z., Gillespie, M.A. and Guidroz, A. (2011). General Job Stress: A Unidimensional Measure and Its Non-linear Relations with Outcome Variables. *Stress and Health*, 28(2), pp.137–148. doi:10.1002/smi.1413.
- Yildiz, M. (2007). E-government research: Reviewing the literature, limitations, and ways forward. *Government Information Quarterly*, 24(3), pp. 646-665. doi:10.1016/j.giq.2007.01.002.
- Yolles, M. (2005). Organizational intelligence. *The Journal of Workplace Learning*, 17 (1/2), pp. 99-114. doi:10.1108/13665620510574496.
- Yolles, M. (2006). Organizations as complex systems: An introduction to knowledge cybernetics. In: K.A Richardson, & M.R. Lissack, eds., *Managing the complex*. Charlotte, NC: Information Age Publishing. pp. 3-794.
- Yolles, M., & Fink, I. (2011). Understanding organisational intelligences as constituting elements of normative personality. In: *IACCM 2011*.
- Yozgat, U., Yurtkoru, S.E., & Bilginoğlu, E. (2013). Job Stress and job performance among employees in public sector in Istanbul: Examining the moderating role of emotional intelligence. *Procedia - Social and Behavioral Sciences*, 75, pp. 518-524. doi:10.1016/j.sbspro.2013.04.056.
- Yusoff, M. (2008). *Strategic management in the public sector: An interpretive study of the application of strategic management practices in the local authorities in Malaysia*. PhD Dissertation.
- Yusuf, I. & Ayşe Sezin, B. (2013). The effect of organizational citizenship behaviours of primary school teachers on their burnout. *Theory & Practice*, 13 (3), pp. 1545-1550. doi: 10.12738/estp.2013.3.1588.
- Zaidi, S. F. H., & Qteishat, M. K. (2012). Assessing e-Government service delivery (Government to citizen). *International Journal of eBusiness and eGovernment Studies*, 4 (1), pp. 45-54.
- Zainal, N. Z. B., Hussin, H., & Nazri, M. N. M. (2017). Big data initiatives by governments - Issues and challenges: A review. In: *Proceedings - 6th International Conference on Information and Communication Technology for the Muslim World, ICT4M 2016*.

- Zarbaksh, M., Alipour, H., Zahra, K.D. & Taleghani, M. (2011). Standardization of Albrecht's organizational intelligence of the personnel and principals of the Junior High Schools of the West of Mazandaran Province. *Australian Journal of Basic and Applied Sciences*, 5(10), pp. 990-995.
- Zeithaml, V. A., Parasuraman, A., & Malhotra, A. (2000). *A conceptual framework for understanding e-service quality: implications for future research and managerial practice* (Vol. 115). Cambridge, MA: Marketing Science Institute.
- Zeithaml, V.A. (2002). Service excellence in electronic channels. *Managing Service Quality*, 12 (3), pp. 135-138. doi: 10.1108/09604520210429187.
- Zeithaml, V.A., Parasuraman, A., & Malhotra, A. (2002), Service quality delivery through web sites: A critical review of extant knowledge, *Journal of the Academy of Marketing Science*, 30 (4), pp. 362-376. doi:10.1177/009207002236911.
- Zhang, B., & Morris, J. L. (2014). High-performance work systems and organizational performance: Testing the mediation role of employee outcomes using evidence from PR China. *The International Journal of Human Resource Management*, 25(1), pp. 68–90. doi: 10.1080/09585192.2013.781524.
- Zhang, Z., & Yuan, K.H. (2018). *Practical statistical power analysis using Webpower and R*. Granger, Ind: ISDSA Press.
- Zhu, J., Hu, Y., Liu, Q., & Cox, M. F. (2015). Validation of an instrument for chinese Engineering students' epistemological development: application of Perry's Theory. *International Journal of Chinese Education*, 4(2), pp. 135–161. doi:10.1163/22125868-12340050.
- Zia-ur-Rehman, M., Iqbal, Y.M.J., & Ahmed, S.A. (2020). Survival of the fittest: Analysing the triangulation of employee mindfulness and authentic leadership and organizational intelligence. *Research Journal of Social Sciences and Economics Review*, 1(3), pp. 119-128. doi:10.36902/rjsser-vol1-iss3-2020.

## Summary of Expert Reviews During Content Validity Process

	ORIGINAL ITEMS	SOURCE	REVISED ITEMS (STAGE 1)	EXPERT REVIEW				REVISED ITEMS (STAGE 2)
				AGREE	AGREE WITH AMMENDMENT	DISAGREE	NOT REVIEWED	
<b>PART I: ORGANISATIONAL INTELLIGENCE</b>								
Scale : 1 = Strongly disagree, 2 = Disagree, 3 = Slightly disagree, 4 = Neutral, 5 = Slightly agree, 6 = Agree, 7 = Strongly agree								
			To what extent do you agree that your organisation adopts these practices?					
<b>Leadership</b>								
1	Have the executives articulated a credible "value proposition," i.e., the organisation's promise to the marketplace, as the heart of the strategic concept? Strategic Vision	OI Profile (Albrecht, 2003) OI Survey (Falletta, 2018)	Head of department articulated credible promises to the citizen as the core of strategic concept.	5/9	1/9	0/9	3/9	Head of department articulated credible promises to the citizen as the core of strategic concept.
2	Do managers use the mission or vision statement regularly for guidance in making key decisions and setting major priorities? Strategic Vision		Managers use the mission or vision statement regularly for guidance in making key decisions and setting major priorities.	4/9	1/9	0/9	4/9	Merged with item 18-Strategic Vision
3	Does management share plans, priorities, and operating results with the employees? Shared Fate		Managers share plans, priorities, and operating results with the employees.	4/9	1/9	0/9	4/9	Head of department share plans, priorities, and operating results with the employees
4	Are the leaders of the enterprise willing to admit their mistakes and cancel misguided ventures that aren't working? Appetite for Change		Head of department promotes ethics and integrity within organisation	4/9	0/9	0/9	5/9	Managers at all level promote ethics and integrity within organisation
5	Head of department promotes ethics and integrity within organisation (Falletta, 2018 OI survey)							
6	Does management promote an atmosphere of openness to and acceptance of change, and of thinking about the business in new and original ways? Appetite for Change		Head of department demonstrates openness to change and thinks about doing things in new ways	4/9	1/9	0/9	4/9	Head of department demonstrates openness to change and thinks about doing things in new ways
7	Do managers approach their jobs with energy, enthusiasm, and optimism? Heart		Head of department demonstrate one of these values in carrying out their work: commitment, enthusiasm, optimism, energy.	3/9	2/9	0/9	4/9	Managers at all level demonstrate these values in carrying out their work: commitment, enthusiasm, optimism, energy.
8	Do managers model commitment, energy, enthusiasm, and optimism in the eyes of the employees? Heart							
9	Do executives, managers, and supervisors communicate the performance goals, targets, and expectations clearly and continually? Performance pressure		Leaders at all levels communicate the performance goals, targets, and expectations clearly and continually.	5/9	0/9	0/9	4/9	Managers constantly communicate clear performance targets and expectations to the employees. (LD)
10	Do managers fully comprehend and appreciate the various individual skills, qualifications, and knowledge available from employees in their units? Knowledge Deployment		Removed as it seems like a duplication of item no. 11.	4/9	1/9	0/9	4/9	-
11	Do managers show respect and appreciation for knowledge and education as key resources and work skills? Knowledge deployment		Head of department show respect and appreciation for knowledge and education as key resources and work skills of employees.	4/9	1/9	0/9	4/9	Managers at all level appreciate knowledge and education as key resources and work skills of employees.

	ORIGINAL ITEMS	SOURCE	REVISED ITEMS (STAGE 1)	EXPERT REVIEW				REVISED ITEMS (STAGE 2)
				AGREE	AGREE WITH AMMENDMENT	DISAGREE	NOT REVIEWED	
12	Do executives, managers, and key staff people continually study the latest business ideas, trends, and research results related to the business? Knowledge deployment		Leaders at all level continually study the latest ideas and trends related to the core business.	4/9	0/9	0/9	5/9	merged with strategic vision - item 15
13	Do supervisors act quickly and decisively to solve employee performance problems, rather than allow unproductive workers to undermine the efforts of productive workers? Performance Pressure		Added after expert review Immediate superiors act quickly or decisively to solve under-performing or unproductive employee problems - Leaders at all level should play their roles - GOM's Service Circular No. 7/2015: Exit	4/9	1/9	0/9	4/9	Managers at all level act quickly or decisively to solve unproductive employees.
<b>Strategic Vision (do we know where we are going?)</b>								
14	Is there an ongoing "strategic conversation" throughout the organisation, i.e., a continuing discussion of the business environment and ways to meet the challenges it presents?	OI Profile (Albrecht, 2003)	There is an ongoing "strategic review" of the business environment at all levels to meet the current challenges.	4/9	2/9	0/9	3/9	There is an ongoing "strategic discussion" of the internal and external environment at all organisational level to meet the current challenges.
15	Is there a formal, disciplined process for "environmental scanning," i.e., a systematic review of the business environment to identify key trends, threats, and opportunities?		There is a systematic process for environmental scanning to identify key trends, threats, and opportunities of the organisation.	4/9	1/9	0/9	4/9	There is a systematic process of environmental scanning to identify key trends, threats, and opportunities of the organisation.
16	Is there an annual strategic review, in which all executives and other key leaders reconsider the organisation's environment, direction, and key strategic priorities?		There is an annual strategic review, in which all key leaders reconsider the organisation's environment, direction, and key strategic priorities.	4/9	1/9	0/9	4/9	There is an annual strategic review, involving leaders at level to reconsider the organisation's environment, direction, and key strategic priorities?
17	Have the executives articulated a credible "value proposition," i.e., the organisation's promise to the marketplace, as the heart of the strategic concept?		<i>Removed but included under LEADERSHIP dimension</i>	5/9	0/9	0/9	4/9	-
18	Is there a meaningful and compelling statement of direction, i.e., vision, mission, or key principles for guiding the organisation?		There is a meaningful and convincing vision, mission, or key principles for guiding the organisation.	5/9	0/9	0/9	4/9	There is a meaningful and convincing vision, mission, or principles for guiding the organisation in making key decisions.
19	Do the managers use the mission or vision statement regularly for guidance in making key decisions and setting major priorities?		<i>Removed but included under LEADERSHIP dimension but later combined with item 18 SV</i>	5/9	0/9	0/9	4/9	
20	Does the organisation have an effective process for identifying, developing, and promoting its future leaders and strategic thinkers?		The organisation has an effective process for developing its future leaders at departmental level.	6/9	0/9	0/9	3/9	The organisation has an effective process for developing its strategic thinkers at the organisational level.
<b>Shared Fate (are we all in the same boat?)</b>								
21	Does management share plans, priorities, and operating results with the employees?	<i>Removed but included under LEADERSHIP dimension</i>	5/9	0/9	0/9	4/9	-	
22	Do people at all levels understand the key idea of the business and understand the overall strategic concept?	Employees at all levels understand the key idea and overall strategic concept of the organisation.	5/9	0/9	0/9	4/9	Employees at all levels understand the overall strategic concept of the organisation.	
23	Do people in different departments help one another, share information and ideas freely, and generally support one another in getting work done?	Employees in different departments help and support one another in getting work done. Share info - same as item 48	5/9	0/9	0/9	4/9	Employees in different departments help and support one another in getting work done.	

		EXPERT REVIEW						
ORIGINAL ITEMS		SOURCE	REVISED ITEMS (STAGE 1)	AGREE	AGREE WITH AMMENDMENT	DISAGREE	NOT REVIEWED	REVISED ITEMS (STAGE 2)
24	Do employees express a sense of belonging, i.e., a sense that they are a part of the organisation and not merely employees of it.	OI Profile (Albrecht, 2003)	Employees express a sense of belonging for the organisation and not merely employees of it.	4/9	1/9	0/9	4/9	Employees at all levels express sense of belonging with organisation
25	Do employees express a sense of partnership with management, rather than a sense of alienation and animosity?		Employees express a sense of partnership with management, rather than a sense of isolation and ill feeling.	4/9	1/9	0/9	4/9	Employees at all levels express sense of partnership with organisation
26	Do employees believe in the organisation's prospects for success?		Removed during expert rev BUT later rephrased. Success in this context more inclined to private entity. <del>public org</del> <del>goals success is measured via fulfilment of</del>	5/9	0/9	0/9	4/9	Employees believe in the organisation's prospects for success in fulfilling the stakeholders' and citizens' expectation.
27	Do most of the employees see their relationship to the organisation as potentially long lasting?		Removed: Public servant need to be periodically rotated to various dept. for their job enrichment and	5/9	0/9	0/9	4/9	-
<b>Appetite for Change (can we face the unexpected challenges?)</b>								
28	Are the products, services, and forms of value delivery continually evolving and keeping up with the changing demands of the business environment?	OI Profile (Albrecht, 2003)	The service delivery is continually evolving and keeping up with the changing demands of the business environment.	4/9	1/9	0/9	5/9	The service delivery is continually evolving and keeping up with the changing demands of the organisation's environment.
29	Are natural mechanisms in place to encourage innovation, e.g., experiments with new ideas, new product development teams, employee suggestion programs?		The organisation encourage innovation by experimenting new ideas or having employee suggestion programs.	3/9	2/9	0/9	4/9	The organisation encourage innovation by experimenting with new ideas or better ways to do their jobs
30	Are employees are encouraged to find better ways to do their jobs?		The employees are encouraged to find better ways to do their jobs.	3/9	2/9	0/9	4/9	
31	Are people at various level allowed to question the accepted way of doing things?		Employees at various level are allowed to question the accepted way of doing things.	4/9	1/9	0/9	4/9	Employees at various level are allowed to question the accepted way of doing things.
32	Is bureaucratic "underbrush" (e.g., rules for the sake of rules, outmoded policies and procedures) is kept to a minimum?		Bureaucratic processes are kept to a minimum.	3/9	2/9	0/9	4/9	Bureaucratic obstruction (e.g., rules for the sake of rules, outdated policies and procedures) is kept to a minimum.
33	Are the leaders of the enterprise willing to admit their mistakes and cancel misguided ventures that aren't working?		<i>Removed but included under LEADERSHIP dimension</i>	4/9	1/9	0/9	4/9	-
34	Does management promote an atmosphere of openness to and acceptance of change, and of thinking about the business in new and original ways?		<i>Removed but included under LEADERSHIP dimension</i>	4/9	1/9	0/9	4/9	-
<b>Heart (do we have the spirit and energy to succeed?)</b>								
35	Do employees perceive the overall quality of work life in the organisation as high?	OI Profile (Albrecht, 2003)	<i>Removed as it may be conflicting with the Job Stress Scale items - OS2</i>	4/9	1/9	0/9	4/9	-
36	Do employees believe that management has their best interests at heart?		Employees believe that management has their best interests at heart.	4/9	1/9	0/9	4/9	Employees believe that management has their best interests at heart.
37	Do employees express a sense of pride in belonging to the organisation?		Employees express a sense of pride in belonging to the organisation.	4/9	1/9	0/9	4/9	Employees express a sense of pride in belonging to the organisation.
38	Are employees willing to put in extra effort to help the organisation succeed and achieve its goals?		Employees are willing to put in extra effort to help the organisation succeed and achieve its goals.	3/9	2/9	0/9	4/9	Employees are willing to put in extra effort to help the organisation succeed and achieve its goals.

	ORIGINAL ITEMS	SOURCE	REVISED ITEMS (STAGE 1)	EXPERT REVIEW				REVISED ITEMS (STAGE 2)
				AGREE	AGREE WITH AMMENDMENT	DISAGREE	NOT REVIEWED	
39	Do employees express optimism regarding their career opportunities with the organisation?		Employees express optimism regarding their career opportunities with the organisation.	4/9	1/9	0/9	4/9	Employees express optimism regarding their career growth with the organisation.
40	Do managers approach their jobs with energy, enthusiasm, and optimism?		<i>Removed but included under LEADERSHIP dimension</i>	4/9	1/9	0/9	4/9	-
41	Do managers model commitment, energy, enthusiasm, and optimism in the eyes of the employees?		<i>Removed but included under LEADERSHIP dimension</i>	4/9	1/9	0/9	4/9	-
<b>Alignment &amp; Congruence (do the organization's "rules and tools" help us succeed?)</b>								
42	Is the overall structure of the organisation appropriate to the business mission?	OI Profile (Albrecht, 2003)	The overall structure of the organisation is appropriate to its core business.	5/9	0/9	0/9	4/9	The overall structure of the organisation is appropriate to its core business.
43	Do policies, rules, and regulations make sense in light of the key business priorities?		Policies, rules, and regulations are in line with the core business priorities.					Policies, rules, and regulations are in line with the core organisation priorities.
44	Do business processes facilitate employee performance and productivity rather than impede it?		Business processes facilitate employee's performance rather than delaying it.	4/9	1/9	0/9	4/9	Work procedures facilitate employee's performance rather than delaying it.
45	Do the information systems and tools empower the employees to do their jobs effectively?		The information systems and tools empower the employees to do their jobs effectively.	6/9	0/9	0/9	3/9	The information systems and tools enable the employees in doing their jobs effectively to add value to the customers
46	Do the information systems enable employees to create value for their customers?		The information systems and tools enable employees to add on value for their customers.	5/9	1/9	0/9	4/9	
47	Are authority and responsibility passed as far down into the organisation as possible?		Authority and responsibility are passed down into the organisation as far as possible.	5/9	1/9	0/9	4/9	Authority and responsibility are delegated as far as possible into the organisation.
48	Are divisional and departmental missions aligned so as to facilitate cooperation and coordinated efforts, rather than inter-unit conflict?		Departmental missions are aligned to facilitate cooperation and coordinated efforts, rather than inter-unit conflict.	4/9	1/9	0/9	4/9	Departmental missions are aligned to facilitate cooperation and coordinated efforts among the units.
<b>Knowledge Deployment (do we share our information, knowledge, and wisdom?)</b>								
49	Are there natural "cultural" processes by which people share knowledge and exchange important business information?	OI Profile (Albrecht, 2003)	It is my organisational culture by which employees share knowledge and exchange important business information.	4/9	1/9	0/9	4/9	The employees inculcate the culture of sharing knowledge and exchanging important organisational information.
50	Do managers show respect and appreciation for knowledge and education as key resources and work skills?		<i>Removed but included under LEADERSHIP dimension</i>	5/9	0/9	0/9	4/9	-
51	Are organisational boundaries "porous" to ideas and information, allowing people to share what they learn rather than "hoarding" information?		Organisational boundaries allow employees to share ideas and information rather than keeping information to themselves.	3/9	2/9	0/9	4/9	Organisational boundaries allow employees to share ideas and information rather than keeping information to themselves.
52	Do the information systems support the wide availability and free flow of useful operating information?		The information systems and tools support the availability and free flow of useful operating information.	4/9	1/9	0/9	4/9	The information systems and tools support the availability and free flow of useful operating information.
53	Do executives, managers, and key staff people continually study the latest business ideas, trends, and research results related to the business?		<i>Removed but included under LEADERSHIP dimension</i>	5/9	0/9	0/9	4/9	-
54	Has management instituted programs to support continuous learning and career development for all employees?		The management has initiated programs to support either continuous learning or career development for all employees.	5/9	0/9	0/9	4/9	The organisation has initiated programs to support either continuous learning or career development for all employees.

	ORIGINAL ITEMS	SOURCE	REVISED ITEMS (STAGE 1)	EXPERT REVIEW				REVISED ITEMS (STAGE 2)
				AGREE	AGREE WITH AMMENDMENT	DISAGREE	NOT REVIEWED	
55	Do managers fully comprehend and appreciate the various individual skills, qualifications, and knowledge available from employees in their units?		<i>Removed but included under LEADERSHIP dimension</i>	5/9	0/9	0/9	4/9	-
<b>Performance Pressure (are we serious about getting things done?)</b>								
56	Do employees at all levels understand clearly what their roles responsibilities are, and what contributions are expected from them?	OI Profile (Albrecht, 2003)	Employees at all levels understand clearly their roles, responsibilities and expected contributions from them.	4/9	1/9	0/9	4/9	Employees at all levels understand clearly their roles, responsibilities and expected contributions.
57	Do executives, managers, and supervisors communicate the performance goals, targets, and expectations clearly and continually?		<i>Removed but included under LEADERSHIP dimension</i>	5/9	0/9	0/9	4/9	-
58	Do supervisors act quickly and decisively to solve employee performance problems, rather than allow unproductive workers to undermine the efforts of productive workers?		Managers act quickly or decisively to solve employee performance problems, rather than allow unproductive workers to undermine the efforts of productive workers.	4/9	1/9	0/9	4/9	' Removed but included under LEADERSHIP dimension
59	Do senior and middle managers act to rehabilitate or remove failing managers, and to require a high level of managerial competence in all leadership positions?		<i>Removal of under performing employees are usually done via top-down approach, in accordance with the GOM's Service Circular No. 7/2015: Exit Policy for Public Service Officers.</i>	4/9	0/9	0/9	5/9	-
60	Do employees receive feedback about their performance and recognition of their contributions?		Employees receive feedback about their performance or recognition of their contributions.	4/9	1/9	0/9	4/9	Employees receive feedback about their performance or recognition of their contributions.
61	Do employees feel their work contributes to the success of the enterprise?		Employees feel their work contributes to the success of the organisation.	5/9	0/9	0/9	4/9	Employees feel their work contributes to the success of the organisation.
62	Do employees believe their compensation and career successes are fairly determined by their job performance	Employees believe their compensation and career successes are fairly determined by their job performance	5/9	0/9	0/9	4/9	Employees believe their rewards and career successes are determined by their job performance	
	<b>50</b>		<b>43</b>					<b>39</b>
	<b>OPEN ENDED QUESTIONS:</b>			Which aspects of your organisational practice need to be improved the most to heighten the digital government service quality?				Okay - simplify or merge if possible
				State the reasons for your suggestions above:				
<b>PART II: OCCUPATIONAL STRESS</b>								
<b>Scale: 1 = Not at all, 2 = Once in a while, 3 = Sometimes, 4 = Fairly often, 5 = Frequently, if not always</b>								
1	I have felt fidgety or nervous as a result of my job		I have felt restless or nervous as a result of my job	5/9	0/9	0/9	4/9	I have felt restless or nervous as a result of my job
2	Working here makes it hard to spend enough time with my family		<i>NO CHANGE</i>	5/9	0/9	0/9	4/9	Working here makes it hard to spend enough time with my family
3	My job gets to me more than it should		<i>NO CHANGE</i>	2/9	2/9	0/9	5/9	My job upsets me more than it should



	ORIGINAL ITEMS	SOURCE	REVISED ITEMS (STAGE 1)	EXPERT REVIEW				REVISED ITEMS (STAGE 2)
				AGREE	AGREE WITH AMMENDMENT	DISAGREE	NOT REVIEWED	
4	I spend so much time at work, I can't see the forest for the trees	Job Stress Scale – Parker & Decotius (1983)	<i>NO CHANGE</i>	4/9	1/9	0/9	4/9	I spend so much time at work, I can't <b>understand, or focus on a situation clearly.</b>
5	There are lots of times when my job drives me right up the wall		There are lots of times when my job makes me very angry	5/9	0/9	0/9	4/9	There are lots of times when my job makes me very angry
6	Working here leaves little time for other activities		<i>NO CHANGE</i>	5/9	0/9	0/9	4/9	Working here leaves little time for other activities
7	Sometimes when I think about my job, I get a tight feeling in my chest		<i>NO CHANGE</i>	4/9	2/9	0/9	3/9	Sometimes when I think about my job, I get a uncomfortable feeling in my chest
8	I frequently get the feeling I am married to the organisation		<i>NO CHANGE</i>	5/9	0/9	0/9	4/9	I frequently get the feeling I am married to the organisation
9	I have too much work and too little time to do it in		<i>NO CHANGE</i>	5/9	0/9	0/9	4/9	I have too much work and too little time to do it in
10	I feel guilty when I take time off from job		<i>NO CHANGE</i>	5/9	0/9	0/9	4/9	I feel guilty when I take time off from job
11	I sometimes dread the telephone ringing at home because the call might be job-related		I sometimes worry about the phone calls or messages received at home as they might be job-related	5/9	0/9	0/9	4/9	I sometimes worry about the phone calls or messages received at home as they might be job-related
12	I feel like I never have a day off		<i>NO CHANGE</i>	5/9	0/9	0/9	4/9	I feel like I never have a day off
13	Too many people at my level in the organisation get burned out by job demands		Too many employees at my level in the organisation get burned out by job demands	5/9	0/9	0/9	4/9	Too many employees at my level in the organisation get burned out by job demands
<b>13</b>			<b>13</b>				13	
			<b>OPEN ENDED QUESTIONS:</b>	1. Based on your experience, which OI factors in Part I should be given most consideration by the head of department to improve the employees' wellbeing? 2. In your personal opinion, which OI factors in Part I above is the most desirable ones, contributing to employees' wellbeing in your organisation?			Can simplify or combine with OI questions	
<b>PART III: DIGITAL GOVERNMENT SERVICE QUALITY</b>								
Scale: 1 = Never, 2 = Once in a while, 3 = Sometimes, 4 = Fairly often, 5 = Frequently								
			As a digital government service provider, I perform assessment or monitoring of service quality so that our system or portal ...  <i>Note: Continuous assessment and monitoring are often done based on management SOP, users' feedback and satisfaction report etc.</i>					<b>Assessment and monitoring activities</b> are performed on the following quality criteria of our organisation's digital service system:
<b>Efficiency</b> (ease of using the site and the quality of information the system provides)								

		EXPERT REVIEW						
ORIGINAL ITEMS		SOURCE	REVISED ITEMS (STAGE 1)	AGREE	AGREE WITH AMMENDMENT	DISAGREE	NOT REVIEWED	REVISED ITEMS (STAGE 2)
1	This e-government site's structure is clear and easy to follow.	eGovQual (Papadomiche laki & Mentzas, 2012)	has clear and easy to follow structure	5/9	1/9	0/9	4/9	has clear and easy to navigate structure
2	This e-government site's search engine is effective.		provides search engine or tool that is effective	6/9	0/9	0/9	3/9	provides search engine or tool that is effective
3	This e-government site's site map is well organized.		has well organised site map	6/9	0/9	0/9	3/9	has well organised site map
4	This e-government site is well customized to individual users' needs.		is well customised to individual users' needs.	6/9	0/9	0/9	3/9	is well customised to individual users' needs such as customised search functions by keywords, agencies stc.
5	The information displayed in this e-government site is appropriate detailed.		provides sufficiently detailed information for the completion of transaction.	6/9	0/9	0/9	3/9	provides sufficiently detailed information including the completion of transaction.
6	The information displayed in this e-government site is fresh.		provides up-to-date information.	6/9	0/9	0/9	3/9	To be removed as this feature has been mostly covered under item 14,15,16 of "Transparency" dimension.
7	Information about field's completion in this e-government site is enough.		Removed – combined with item no. 5	6/9	0/9	0/9	3/9	-
<b>Reliability (citizen's confidence towards the digital government site concerning correct and on-time delivery of the service)</b>								
8	Forms in this e-government site are downloaded in short time.	eGovQual (Papadomiche laki & Mentzas, 2012)	enables fast download of the forms and other documents, i.e no broken links	6/9	0/9	0/9	3/9	enables fast download of the forms and other documents, i.e no broken links
9	This e-government site is available and accessible whenever you need it.		provides accessibility of system whenever they need it.	6/9	0/9	0/9	3/9	provides accessibility of system whenever they need it.
10	This e-government site performs the service successfully upon first request.		performs the service successfully upon first request.	6/9	0/9	0/9	3/9	performs the service successfully upon first request.
11	This e-government site provides services in time.		<i>Removed – looks like it represents the description for the rest of the items under Reliability dimension</i>	6/9	0/9	0/9	3/9	-
12	This e-government site's pages are downloaded quickly enough.		enables pages to load quickly enough.	6/9	0/9	0/9	3/9	enables pages to load in reasonable time.
13	This e-government site works properly with your default browser.		works properly with any type of browser.	6/9	0/9	0/9	3/9	works properly with any type of browser.
<b>Transparency (legality of the digital services, including information on service standards and periodical activity reports or plans pertaining to performance, policy and strategy)</b>								
14	disclosure of officially approved public service standards.	Karkin and Jansen, (2016)	provides information on the latest approved service standards, including important dates and deadlines	6/9	0/9	0/9	3/9	provides information on the latest approved service standards, including important dates and deadlines <i>provides information on the latest approved service standards and policies. (T)</i>
15	discloses periodical activity reports or plans pertaining to performance, policy and strategy.		discloses periodical activity reports or plans pertaining to performance, policy and strategy.	6/9	0/9	0/9	3/9	discloses periodical activity reports or plans pertaining to service performance, users satisfaction, policy and strategy. <i>mendedahkan laporan aktiviti berkala berkaitan prestasi perkhidmatan dan kepuasan pelanggan. (T)</i>
16	decisions made by municipality councils or their meeting agendas,		Removed but included after rephrasing: discloses important outcome or decisions from the meeting (e.g ethical board, financial bidding etc)	6/9	0/9	0/9	3/9	discloses important outcome or decisions from the meeting, such as ethical board, financial bidding etc. <i>mendedahkan hasil atau keputusan penting dari mesyuarat terkini</i>

	ORIGINAL ITEMS	SOURCE	REVISED ITEMS (STAGE 1)	EXPERT REVIEW				REVISED ITEMS (STAGE 2)
				AGREE	AGREE WITH AMMENDMENT	DISAGREE	NOT REVIEWED	
17	reports or activities of municipal ethical boards published on the website.			6/9	0/9	0/9	3/9	<i>seperti lembaga etika, pembidaan kewangan dll. (T)</i>
18	Information about using open data sets	UNEGDI (UN, 2020).	provides open government datasets for public access (via data.gov.my platform etc)	4/9	2/9	0/9	3/9	provides open data sets for public access via platform such as data.gov.my platform etc.
			<b>As a digital government service provider, I give considerable importance on the service quality by ensuring ...</b>					<b>The assessment of our digital service quality is performed as follows:</b>
<b>Users Support (Assistance provided by the organization to assist citizens in their quest of information or during their transactions)</b>								
19	Employees show a sincere interest in solving users' problem.	eGovQual (Papadomiche laki & Mentzas, 2012)	users' problems are solved with my sincere interest.	6/9		0/8	3/9	users' problems are solved with my sincere interest.
20	Employees give prompt replies to users' inquiries.		users receive prompt replies from me for any inquiries or complaints.	6/9		0/8	3/9	users receive prompt replies from me for any inquiries or complaints.
21	Employees has the knowledge to answer users' questions.		I have the knowledge to answer users' questions.	6/9		0/8	3/9	employees have the knowledge to answer users' questions.
22	Employees have the ability to convey trust and confidence.		I have the ability to convey trust and confidence to the users.	6/9		0/8	3/9	employees have the ability to convey trust and confidence to the system's users.
<b>Assurance and Trust (citizen's confidence towards the website concerning freedom from risk of danger or doubt during the e-service process)</b>								
23	The behaviour of organisation's e-business instils confidence in you.	eBusiness – SERVQUAL (Lai, 2006)	the performance of the system can promote confidence among the users.	6/9	0/9	0/9	3/9	the performance of the system can promote confidence among the users.
24	users feel safe when interacting with the system, i.e data is archived securely and used for the reasons submitted	eGovQual (Papadomiche laki & Mentzas, 2012)	users feel safe when interacting with the system, i.e data is archived securely.	5/9	1/9	0/9	4/9	ensures the safety of users' data obtained while interacting with the system.
25	Only necessary users' personal data are provided for authentication on this e-government site. Data provided in this e-government site are used only for the reason submitted	eGovQual (Papadomiche laki & Mentzas, 2012)	only necessary users' personal data are provided for authentication purpose.	6/9	0/9	0/9	3/9	only necessary users' personal data are provided for authentication purpose.
	<b>25</b>		<b>21</b>					<b>21</b>
			<b>OPEN ENDED QUESTIONS:</b>	1. How does your organisation perform assessment and evaluation of its digital service to sustain its' quality? 2. Which aspect of your organisation's digital service need more assessment and monitoring to ensure the quality of the service delivery?				See if can simplify or ask only necessary ones.

Sample of Feedback from Respondents During Pretest of Survey Questions



Dear Sir/Madam,

My name is SUBASHINI RAMAKRISHNAN, a PhD student from The University of Nottingham Malaysia Campus. I am currently conducting a research on the influence of occupational stress and organisational traits on the digital government service quality. As such, this study will obtain input from the digital service providers (public service personnel) at the federal government administrative level who serve the citizen and businesses (G2B and G2C).

Firstly, thank you for agreeing to participate in this review process. This process is a confirmatory step to measure the effectiveness of the instrument when applied to the prospective respondents of this study. Hence, this process involves the evaluation of the meaning and understanding of each statement, so they reflect the domain of interest. This document consists of four parts which require your input.

I may be contacted via the email address or mobile number stated below, should you require further clarification about this process. Your feedback and comments are highly appreciated.

Yours Sincerely,

**SUBASHINI RAMAKRISHNAN**

PhD Student

Nottingham University Business School

The University of Nottingham Malaysia Campus

Email: saxsr3@nottingham.edu.my

Mobile No.: 0125248717

**PART 1: KEY DEFINITIONS**

TERMS	THE DEFINITION OF THE KEY TERMS ARE...
<b><u>Digital Government Service Quality</u></b>	
the extent to which the performance of the digital service delivery is continuously improved via internal process support such as constant monitoring and evaluation, to ensure an effective and efficient information search and transactions as well as communications between service providers and the users.	APPROPRIATE & UNDERSTANDABLE <hr/>
<b><u>Organisational Intelligence</u></b>	
the extent to which an organisation mobilises all its potentials and capabilities as a fully functioning brain on achieving its mission.	CLEAR & UNDERSTANDABLE <hr/>
<b><u>Occupational Stress</u></b>	
the feeling of an individual who is required to deviate from normal or self-desired functioning at the workplace as the result of role, opportunities, constraints, or demands relating to potentially important work-related outcomes.	CLEAR & UNDERSTANDABLE <hr/>
<b><u>Top Management</u></b>	
The leaders at the top position of the ministry or department, i.e Secretary General, Deputy Secretary General, Director General and Deputy Director General, directors or under-secretary of divisions.	CLEAR & UNDERSTANDABLE <hr/>
<b><u>Managers</u></b>	
The managers at all levels of your division/ department, including Director of department, under-secretary of divisions, head of sections and units.	CLEAR & UNDERSTANDABLE <hr/>

**PART II: DIGITAL GOVERNMENT SERVICE QUALITY / KUALITI PERKHIDMATAN DIGITAL KERAJAAN (DGSQ)**

*Instruction: Please select the most appropriate number that represents your organisation’s practice to ensure the quality of digital government system on a scale of 1 to 7, where 1 = ‘Never’ and 7 = ‘Frequently’.*

*Arahan: Sila pilih angka paling sesuai yang menggambarkan amalan organisasi anda dalam memastikan kualiti sistem digital kerajaan berdasarkan skala 1 hingga 7, di mana 1 = ‘Tidak Pernah’ dan 7 = ‘Kerap’.*

<i>Never</i> <i>Tidak Pernah</i>	<i>Frequently*</i> <i>Kerap</i>							
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px; text-align: center;">2</td> <td style="width: 20px; text-align: center;">3</td> <td style="width: 20px; text-align: center;">4</td> <td style="width: 20px; text-align: center;">5</td> <td style="width: 20px; text-align: center;">6</td> <td style="width: 20px; text-align: center;">7</td> </tr> </table>	1	2	3	4	5	6	7	
1	2	3	4	5	6	7		
<p><i>*Frequently: periodical assessment and monitoring as stipulated in the organisation’s SOPs and quality standards</i></p> <p><i>Kerap: pemantauan dan penilaian secara berkala seperti yang ditetapkan dalam prosedur kerja (SOP) dan kualiti standard organisasi</i></p>								

**Are the instruction and scale used to measure this item appropriate and understandable:** NO  
 \_\_tajuk dan arahan berbeza. Kualiti perkhidmatan digital vs kualiti system digital membawa maksud dan scope yang berbeza. \_\_\_\_\_

<u>ITEMS</u>		<b>BOTH ENGLISH AND MALAY SURVEY ITEMS ARE....</b> <i>Please click <input checked="" type="checkbox"/> the respective box</i>		
		Clear & Understandable	Not Clear	Comment (ambiguous wording, terminology etc.)
	<b>Continuous internal assessment</b> is performed on the following quality criteria of our organisation’s digital service system: <i>Penilaian dalaman berterusan dilaksanakan ke atas kriteria kualiti sistem perkhidmatan digital berikut</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.	has clear and easy to navigate structure. (EF) <i>mempunyai struktur yang jelas dan mudah dilayari. (EF)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

2.	has search engine or tool that is effective. (EF) <i>mempunyai enjin carian atau peralatan yang berkesan. (EF)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.	has well organised site map. (EF) <i>mempunyai peta laman yang teratur. (EF)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.	provides accessibility whenever users need it. (R) <i>menyediakan akses pada bila-bila masa ianya diperlukan oleh pengguna. (R)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.	demonstrates performance that can promote confidence among the users. (AT) <i>menunjukkan prestasi yang dapat meningkatkan keyakinan pengguna. (AT)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6.	works properly with any type of web browser. (R) <i>berfungsi dengan baik dengan semua jenis pelayar laman sesawang. (R)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7.	performs the service successfully upon first request. (R) <i>melaksanakan perkhidmatan dengan jayanya berdasarkan permintaan kali pertama. (R)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Memberikan perkhidmatan
8.	enables pages to load in reasonable time. (R) <i>mbolehkan halaman dipaparkan dalam masa yang munasabah. (R)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9.	enables fast download of the forms and other documents, i.e no broken links etc. (R)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

	<i>mbolehkan borang dan dokumen lain dimuat turun dengan pantas, iaitu tiada pautan putus dll. (R)</i>			
10.	<p>is well customised to individual users' needs such as customised search functions by keywords, agencies etc. (EF)</p> <p><i>disesuaikan mengikut keperluan pengguna seperti fungsi carian yang disesuaikan dengan kata kunci, agensi dll. (EF)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11.	<p>requests only necessary users' personal data for authentication purpose. (AT)</p> <p><i>hanya meminta data peribadi pengguna yang diperlukan untuk tujuan pengesahan. (AT)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12.	<p>ensures the safety of users' data obtained while interacting with the system (e.g personal data, username, passwords etc). (AT)</p> <p><i>memastikan keselamatan data pengguna yang diperoleh ketika berinteraksi dengan sistem (spt data peribadi, nama pengguna, kata laluan dsb). (AT)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13.	<p>provides sufficiently detailed information including on completing transaction. (EF)</p> <p><i>menyediakan maklumat terperinci termasuk maklumat sesuatu urusan secara menyeluruh. (EF)</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Menyediakan maklumat menyeluruh yang mencukupi
14.	<p>provides information on the latest approved service standards, including important dates. (T)</p> <p><i>menyediakan maklumat terkini mengenai standard perkhidmatan yang diluluskan, termasuk tarikh-tarikh penting urusan terlibat. (T)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



15.	provides latest open government datasets for public access via platform such as data.gov.my etc. (T) <i>menyediakan set data kerajaan terbuka yang terkini untuk diakses oleh masyarakat umum melalui platform seperti data.gov.my dll. (T)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
16.	discloses periodical activity reports pertaining to service performance and customers' satisfaction or plans on policy and strategy. (T) <i>mendedahkan laporan aktiviti berkala yang berkaitan dengan prestasi perkhidmatan dan kepuasan pelanggan atau pelan dasar dan strategi. (T)</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Pelan dasar dan strategi = pelan strategik
17.	discloses important outcome or decisions from the recent meeting, such as ethical board, financial bidding etc. (T) <i>mendedahkan hasil atau keputusan penting dari mesyuarat terkini seperti lembaga etika, pembidaan kewangan dll. (T)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	<b><u>Constant assessment</u></b> of our digital service quality is performed as follows:  <b><u>Penilaian berterusan</u></b> ke atas kualiti sistem digital kami dilaksanakan seperti berikut:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1	users' problems are solved with sincere interest. (US) <i>masalah pengguna diselesaikan dengan niat yang ikhlas.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Niat yang ikhlas vs dengan berintegriti
2	users receive quick replies for any inquiries or complaints. (US) <i>pengguna menerima maklumbalas pantas untuk sebarang pertanyaan atau aduan. (AS)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pantas = segera Untuk = bagi

3	the employees have the knowledge to answer users' questions. (US) <i>pekerja mempunyai pengetahuan untuk menjawab soalan pengguna. (US)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.	the employees have the ability to convey trust and confidence to the system's users. (US) <i>pekerja berupaya menyampaikan kepercayaan dan keyakinan kepada pengguna sistem (US)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Menyampaikan = mempamerkan Maybe boleh nyatakan mempamerkan kepercayaan dan keyakinan kepada pengguna terhadap sistem.

**PART III: ORGANISATIONAL INTELLIGENCE/ KECERDASAN ORGANISASI (OI)**

*Instruction: State your agreement by selecting the most appropriate number that represents your organisation's OI practice on a scale of 1 to 7, where 1 = 'Strongly disagree' and 7 = Strongly agree.*

*Arahan: Sila nyatakan persetujuan anda dengan memilih angka paling sesuai yang menggambarkan penilaian anda berhubung amalan OI oleh organisasi anda berdasarkan skala 1 hingga 7, di mana 1 = 'Sangat tidak bersetuju' dan 'Sangat bersetuju'.*

<i>Strongly Disagree</i> <i>Sangat Tidak Bersetuju</i>				<i>Strongly Agree</i> <i>Sangat Bersetuju</i>		
1	2	3	4	5	6	7

**Are the instruction and scale used to measure this item appropriate and understandable:** YES

ITEMS	Both English and Malay survey items are.... <i>Please (x) the respective column</i>		
	Clear & Understandable	Not Clear	Comment (ambiguous wording, terminology etc.)
<b>Top management</b> of my current organisation... <i>Pengurusan atasan</i> organisasi saya...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

1	share organisation's plans, priorities, and operating results with the employees. (LD) <i>berkongsi perancangan, keutamaan dan hasil pengoperasian dengan pekerja. (LD)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	promote openness to change, i.e doing things in new ways. (LD) <i>menggalakkan keterbukaan untuk berubah, iaitu melaksanakan perkara-perkara dengan kaedah baharu. (LD)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Melaksanakan sesuatu perkara/tugasan dengan menggunakan kaedah yang baharu
3	promotes ethics and integrity within organisation. (LD) <i>menggalakkan pembudayaan etika dan integriti dalam organisasi. (LD)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	<b>Managers at all level</b> of my current organisation... <b><i>Pengurus di semua peringkat organisasi saya...</i></b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	dalam organisasi saya
1	demonstrates commitment, enthusiasm, optimism and energy in carrying out their work. (LD) <i>menunjukkan komitmen, minat dan sifat positif dalam melaksanakan tugas. (LD)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy = semangat
2	communicate the performance targets and expectations clearly and continually to the employees. (LD) <i>menyampaikan sasaran prestasi serta ekspektasi secara jelas dan berterusan kepada pekerja. (LD)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Memaklumkan/menyampaikan kepada pekerja berkenaan sasaran prestasi dan ekspektasi yang jelas secara berterusan
3	shows appreciation for knowledge and education as key resources and skills of employees. (LD)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

	<i>menghargai pengetahuan dan pendidikan sebagai sumber dan kemahiran utama pekerja. (LD)</i>			
4.	act quickly or decisively to solve unproductive employee's issues (LD) <i>bertindak dengan cepat atau tegas untuk menyelesaikan masalah pekerja yang tidak produktif. (LD)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Untuk =dalam
	<b>Generally, employees at all levels of my current organisation...</b> <i>Secara amnya, pekerja di semua peringkat organisasi saya.</i> ...	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Dalam organisasi saya</b>
1.	understand the overall strategic concept of the organisation. (SF) <i>memahami konsep strategi organisasi secara menyeluruh. (SF)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Konsep strategi organisasi vs konsep organisasi strategik
2.	express a sense of pride in belonging to the organisation. (H) <i>menyatakan rasa bangga dan kekitaan terhadap organisasi. (H)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Kekitaan maybe boleh dikeluarkan. Redundant dengan the next following question
3.	express sense of belonging with organisation. (SF) <i>menyatakan rasa kekitaan atau perkongisan yang tinggi dengan organisasi. (SF)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Memperlihatkan semangat kepunyaan dengan organisasi
4.	express a strong sense of partnership with organisation. (SF) <i>menunjukkan rasa perkongisan yang tinggi dengan organisasi. (SF)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

5.	are willing to put in extra effort to help the organisation succeed and achieve its goals. (H) <i>bersedia berusaha sedaya upaya untuk membantu organisasi berjaya dan mencapai matlamatnya. (H)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6.	express optimism regarding their career growth with the organisation. (H) <i>menyatakan keyakinan terhadap perkembangan kerjaya mereka dengan organisasi.. (H)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7.	believe that management has their best interests at heart. (H) <i>mempercayai bahawa pengurusan menjaga kepentingan mereka secara terbaik (H)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8.	are allowed to question the accepted way of doing things. (AC) <i>dibenarkan untuk mempersoalkan pelaksanaan tugas mengikut amalan kebiasaan. (AC)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9.	understand clearly their roles, responsibilities and expected contributions. (PP) <i>memahami dengan jelas peranan, tanggungjawab dan sumbangan yang diharapkan. (PP)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10.	feel their work contributes to the success of the organisation. (PP) <i>berasakan bahawa kerja mereka menyumbang kepada kejayaan organisasi. (PP)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11.	believe their rewards and career successes are determined by their job performance. (PP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

	<i>percaya bahawa ganjaran dan kejayaan kerjaya mereka ditentukan oleh prestasi kerja mereka. (PP)</i>			
12.	<p>receive feedback about their performance or recognition of their contributions. (PP)</p> <p><i>menerima maklum balas mengenai prestasi kerja atau pengiktirafan untuk sumbangan mereka. (PP)</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Diberikan pengiktiran atas sumbangan mereka
13.	<p>help and support one another in getting work done, despite from different departments. (SF)</p> <p><i>Saling bantu membantu dan menyokong antara satu sama lain dalam menyelesaikan kerja, walaupun dari pelbagai jabatan. (SF)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
14.	<p>inculcate the culture of sharing knowledge and exchanging important organisation's information. (KD)</p> <p><i>Membudayakan perkongsian maklumat penting dan pengetahuan dalam organisasi. (KD).</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Meningkatkan budaya
15.	<p>believe in the organisation's prospects for success, as to how it fulfils the stakeholders' and citizens' expectation. (SF)</p> <p><i>mempercayai prospek kejayaan, iaitu bagaimana ia dapat memenuhi harapan pemegang taruh dan rakyat. (SF)</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Prospek kejayaan organisasi
	<p><b>My current organisation carries out these activities:</b></p> <p><i>Organisasi saya sekarang menjalankan aktiviti-aktiviti berikut:</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

1.	<p>ongoing strategic discussion at all levels on the organisation's internal and external environment to meet the current challenges (SV).</p> <p><i>perbincangan strategik berterusan melibatkan semua peringkat mengenai persekitaran dalaman dan luaran organisasi bagi menghadapi cabaran semasa.</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.	<p>systematic process for environmental scanning to identify key trends, threats, and opportunities of the organisation (SV).</p> <p><i>proses pengamatan persekitaran yang sistematik untuk mengenal pasti trend utama, ancaman, dan peluang organisasi.</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pengamatan = tinjauan
3.	<p>process of identification of key stakeholders to obtain inputs for designing credible organisational strategy (ESE).</p> <p><i>proses mengenalpasti pemegang taruh utama bagi mendapatkan input untuk merancang strategi organisasi yang diyakini.</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.	<p>annual strategic review, involving leaders at all level to reconsider the organisation's environment, direction, and strategies (SV).</p> <p><i>semakan semula strategi tahunan, yang melibatkan semua peringkat pemimpin untuk mempertimbangkan semula persekitaran, hala tuju, dan strategi organisasi.</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Secara tahunan
5.	<p>Have an effective process for developing its strategic thinkers at organisational level (SV).</p> <p><i>Mempunyai proses yang efektif untuk membangunkan pemikir</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Apakah yang dimaksudkan dengan peringkat organisasi. Adakah dalam organisasi atau di setiap peringkat organisasi

	<i>strategic di peringkat organisasi.</i>			
6.	<p>initiation of programs to support either continuous learning or career development for all employees (KD).</p> <p><i>Memulakan program untuk menyokong pembelajaran berterusan atau pembangunan kerjaya untuk semua pekerja.</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7.	<p>encouragement of innovation by experimenting with new ideas or better ways to do their jobs (AC).</p> <p><i>memberi galakan dalam inovasi dengan menguji idea baharu atau kaedah lebih baik untuk melaksanakan tugas mereka.</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Kaedah lebih baik dalam melaksanakan tugas
8.	<p>engagement activities with all stakeholders to consult on issues relating to policies and strategies (ESE).</p> <p><i>melaksanakan aktiviti libat urus dengan semua pemegang taruh untuk berunding mengenai isu-isu berkaitan dengan dasar dan strategi.</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9.	<p>Inputs obtained from stakeholders are brought to management meeting etc to continually study the latest ideas and trends related to the core business (ESE).</p> <p><i>Input yang diperoleh dari pemegang taruh dibawa ke mesyuarat pengurusan dll untuk mengkaji idea dan trend terkini berkaitan urusan teras secara berterusan.</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Urusan teras = fungsi teras = fungsi utama
	<p><b>My current organisation exhibits these traits:</b></p> <p><i>Organisasi saya sekarang mempunyai ciri-ciri berikut:</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



1.	<p>availability of policies, rules, and regulations which are in line with organisation's core priorities. (ALC)</p> <p><i>wujudnya dasar dan peraturan yang selari dengan keutamaan teras organisasi. (ALC)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.	<p>overall structure of the organisation which is appropriate to its core business. (ALC)</p> <p><i>keseluruhan struktur organisasi yang sesuai dengan fungsi utamanya. (ALC)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.	<p>availability of organisational missions that are aligned to facilitate cooperation and coordination between units (ALC)</p> <p><i>wujudnya misi organisasi yang selari untuk mempermudah kerjasama dan penyelarasan di antara unit. (ALC)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.	<p>authority and responsibility that are delegated into the organisation as far as possible. (ALC)</p> <p><i>Kuasa dan tanggungjawab yang seboleh-bolehnya diperturunkan ke peringkat paling rendah dalam organisasi.</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.	<p>availability of work procedures that facilitate employee's performance rather than delaying it. (ALC)</p> <p><i>wujudnya prosedur kerja yang mempermudah pencapaian prestasi pekerja tanpa melenghkannya. (ALC)</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Melenghkannya = memperlahkannya

6.	<p>availability of meaningful and convincing vision, mission, or principles for guiding the organisation in making key decisions. (SV)</p> <p><i>wujudnya visi, misi, atau prinsip-prinsip untuk memberi panduan kepada organisasi dalam membuat keputusan penting (SV)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7.	<p>bureaucratic obstructions such as rules for the sake of rules, outdated policies and procedures are kept to a minimum. (AC)</p> <p><i>halangan birokrasi seperti peraturan yang tidak lagi diperlukan, dasar dan prosedur lapuk berada di tahap minima. (AC)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8.	<p>evolving service delivery that keeps up with the changing demands of the organisation's environment. (AC)</p> <p><i>penyampaian perkhidmatan yang berkembang selari dengan perubahan keperluan persekitaran organisasi. (AC)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9.	<p>organisational boundaries that allow employees to share ideas and information rather than keeping it to themselves. (KD)</p> <p><i>batasan organisasi yang membolehkan pekerja berkongsi idea dan maklumat daripada menyimpannya sendiri. (KD)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10.	<p>availability of platforms such as e-participation etc to obtain public opinions on variety of issues regarding public service delivery. (ESE)</p> <p><i>kebolehsediaan platform seperti e-penyertaan dll untuk mendapatkan pendapat</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

	<i>masyarakat umum mengenai pelbagai isu mengenai penyampaian perkhidmatan awam. (ESE)</i>			
11.	<p>existence of decisions made on issues relating to policies and strategies which reflects the outcome from consultations with the stakeholders. (ESE)</p> <p><i>terdapatnya keputusan yang dibuat mengenai isu-isu berkaitan dasar dan strategi yang mencerminkan hasil daripada perundingan dengan pihak pemegang taruh. (ESE)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12.	<p>availability of information systems and tools that enable the employees in doing their jobs effectively to add value to the customers. (ALC)</p> <p><i>kebolehsediaan sistem maklumat dan kelengkapan yang membolehkan pekerja menjalankan tugas mereka dengan berkesan untuk menambah nilai kepada pelanggan. (ALC)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13.	<p>availability of information systems and tools that support the availability and free flow of useful operating information. (KD)</p> <p><i>kebolehsediaan sistem maklumat dan peralatan yang menyokong ketersediaan dan aliran bebas maklumat pengoperasian yang berguna. (KD)</i></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**PART IV: OCCUPATIONAL STRESS/ TEKANAN KERJA**

*Please select the most appropriate number that best fits your own feeling about your job on a scale of 1 to 7, where 1 = ‘Strongly disagree’ and 7 = ‘Strongly agree’.*

*Arahan: Sila pilih angka yang paling menggambarkan perasaan anda mengenai kerja anda berdasarkan skala 1 hingga 7, di mana 1 = ‘Sangat tidak bersetuju’ dan 7= ‘Sangat bersetuju’*

<i>Strongly Disagree</i> <i>Sangat Tidak Bersetuju</i>				<i>Strongly Agree</i> <i>Sangat Bersetuju</i>		
1	2	3	4	5	6	7

**Are the instruction and scale used to measure this item appropriate and understandable:** YES

		My assessment on the both English and Malay survey items are.... <i>Please (x) the respective column</i>		
	ITEMS	Clear & Understandable	Not Clear	REMARK (ambiguous wording, terminology etc.)
	These statements below describe <b>the feeling about my current job.</b> <i>Pernyataan di bawah menggambarkan perasaan saya terhadap kerja saya sekarang.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1	I have felt fidgety or nervous as a result of my job. <i>Saya berasa gelisah atau gementar disebabkan kerja saya.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	Working here makes it hard to spend enough time with my family. <i>Bekerja di sini menyukarkan saya untuk meluangkan masa yang mencukupi bersama keluarga.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3	My job bothers me more than it should. <i>Kerja saya merunsingkan saya lebih daripada yang sepatutnya.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

4	I am not able to see my work from a bigger perspective, for I spend too much time at work. <i>Saya tidak dapat melihat kerja saya dari perspektif lebih luas, kerana saya menghabiskan terlalu banyak masa di tempat kerja.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5	There are lots of times when my job drives me right up the wall. <i>Kerja saya seringkali menyakitkan hati saya.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6	Working here leaves little time for other activities. <i>Bekerja di sini menjadikan saya mempunyai masa yang sedikit untuk aktiviti lain.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7	Sometimes when I think about my job, I get a tight feeling in my chest. <i>Kadangkala apabila saya memikirkan tentang kerja, saya berasa sesak dada.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8	I frequently get the feeling I am married to the organisation. <i>Saya sering berasakan bahawa saya terlalu terikat dengan organisasi.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9	I have too much work and too little time to do it. <i>Saya mempunyai terlalu banyak kerja dan masa yang terlalu singkat untuk melakukannya.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10	I feel guilty when I take time off from job. <i>Saya berasa bersalah apabila mengambil cuti daripada kerja.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11	I sometimes worry about the phone calls or messages received at home as they might be job-related. <i>Kadangkala saya bimbang apabila menerima panggilan telefon atau mesej di rumah kerana ia mungkin berkaitan dengan kerja.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12	I feel like I never have a day off.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	..Saya tidak pernah bercuti

	<i>Saya berasa seolah-olah saya tidak pernah mendapat cuti.</i>			
13	<p>Too many employees at my level in the current organisation get burned out by job demands.</p> <p><i>Terlalu ramai pekerja pada peringkat saya di organisasi sekarang mengalami kelesuan disebabkan permintaan kerja.</i></p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	..disebabkan tuntutan kerja

.....THE END.....



**University of  
Nottingham**  
UK | CHINA | MALAYSIA

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Selangor Darul Ehsan

Malaysia

+6 (0)3 8924 8000

nottingham.edu.my

22 February 2021

Dear Subashini Ramakrishnan,

Reference Number: NUBS-REC-2021-3

Project Title: [PhD] Organisational Intelligence and Digital Government Service Quality: The Mediating Role of Occupational Stress among Service Providers at the Malaysian Federal Government Administrative Level

The NUBS Research Ethics Committee approves your application.

Please note that this approval is for the research work you describe in the application. If you change your research design (i.e., the research questions, the methodologies, or the respondents), you would need to apply for an ethical approval again.

We hope you have the best of luck with your research project.

Regards,

A handwritten signature in blue ink that reads "Rasyad Parinduri".

Rasyad A. Parinduri

Chair

NUBS Research Ethics Committee



11 February 2022

Dear Subashini Ramakrishnan:

Reference Number: NUBS-REC-2021-18

Project title: Organisational intelligence and digital government service quality: the mediating role of occupational stress among digital government service providers in Malaysia

The NUBS Research Ethics Committee approves your application. This approval is for the research work you describe in your application. If you change your research design (i.e., the research questions, the methodologies, the research period, or the respondents), you must apply for an ethical approval again.

We would like to remind you of your ethical responsibilities to research participants. Please consult the University of Nottingham's Code of Research Conduct and Research Ethics (<https://www.nottingham.ac.uk/research/ethics-and-integrity>), Malaysia's Personal Data Protection Act 2010 (<https://bit.ly/2Ui5sEQ>), and the laws of the countries where you collect data to ensure that you follow all rules and regulation.

This NUBS Research Ethics Committee's approval does not alter, replace, or remove those responsibilities; nor does it certify that they have been met.

We hope you have the best of luck with your research project.

Regards,

Rasyad A. Parinduri  
Chair  
NUBS Research Ethics Committee





## **Information for Research Participants**

Dear Sir/ Madam,

Thank you for agreeing to participate in the research project. Your participation in this research is voluntary, and you may change your mind about being involved in the research at any time, and without giving a reason. This information sheet is designed to give you full details of the research project, its goals, the research team, the research funder, and what you will be asked to do as part of the research. If you have any questions that are not answered by this information sheet, please ask.

### **What is the research project called?**

Organisational Intelligence and Digital Government Service Quality: The Mediating Role of Occupational Stress among Service Providers at The Malaysian Federal Government Administrative Level

### **Who is carrying out the research?**

I am a PhD student from The University of Nottingham Malaysia Campus. I am also a Malaysian public service personnel who is conducting research under the sponsorship of the Malaysian Public Service Department (JPA).

### **What is the research about?**

This research aims to examine the influence of organisational intelligence traits on the digital government services quality and the mediating role of occupational stress among the service providers on this relationship.

### **What groups of people have been asked to take part?**

This research involves the digital service providers (public service personnel) at the federal government administrative level who serve the citizen and businesses (G2B and G2C). However, project manager and his higher-level personnel's participation are excluded for this survey.

### **What will research participants be asked to do?**

It will take around 10-15 minutes to complete the survey which consists of four parts (Part I-IV). The participants are required to answer the questionnaire based on the given Likert scales for each part. There are also open-ended questions at the end of each part to obtain further information about the research. The final part consists of some demographic questions on participants job profile. There are no right or wrong answers. The questionnaires can be completed via both online and offline platform.

### **What will happen to the information I provide?**

Kindly rest assured that your response will be anonymous and treated in the strictest confidence. Besides, all information derived from this survey will only be used for research purposes to fulfil the PhD thesis requirements of The University of Nottingham.

**What will be the outputs of the research?**

The output of the research will be the PhD thesis, journal and conference paper related to the study.

**Contact details:**

Subashini Ramakrishnan  
Nottingham University Business School  
The University of Nottingham Malaysia Campus  
Email: saxsr3@nottingham.edu.my  
Main Supervisor: Associate Prof. Dr. Kenny Wong  
Email: Wong.MengSeng@nottingham.edu.my.

**Complaint procedure**

If you wish to complain about the way in which the research is being conducted or have any concerns about the research then in the first instance please contact my main supervisor above or contact the Research Ethics Committee, Nottingham University Business School (NUBS REC) below:

Research Ethics Committee  
Nottingham University Business School  
The University of Nottingham Malaysia Campus  
Jalan Broga 43500 Semenyih  
Selangor Darul Ehsan, Malaysia  
Email: nubs-rec@nottingham.edu.my

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**Participant's Consent**

I confirm that I have read and understood the information stated above. Therefore, I agree with the terms and would like to participate in this survey.

Yes	
No	

Date: \_\_\_\_\_

**KEY DEFINITIONS/ DEFINISI UTAMA**

<b>TERMS</b>	<b>DEFINITION</b>
<b>Digital Government Service Quality</b>	the extent to which the performance of the service delivery is sustained via internal process support such as continuous monitoring and evaluation, to ensure an effective and efficient online information search and transactions as well as communications between service providers and the users.
<b>Organisational Intelligence</b>	the extent to which an organisation mobilises all its potentials and capabilities as a fully functioning brain on achieving its mission.
<b>Occupational Stress</b>	the feeling of an individual who is required to deviate from normal or self-desired functioning at the workplace as the result of role, opportunities, constraints, or demands relating to potentially important work-related outcomes.
<b>Top Management</b>	the leaders at the top position of the ministry or department, i.e Secretary General, Deputy Secretary General, Director General, Deputy Director General, Directors or Under-Secretary of divisions.
<b>Managers</b>	The managers at all levels of your division/ department, including Director and under-secretary of divisions, head of sections and units.
<b>Organisation</b>	The current division/ department that a service provider is attached to (exp: Licensing Division, ICT Division)

**PART I: DIGITAL GOVERNMENT SERVICE QUALITY**

*Instruction: Please select [ / ] the most appropriate number that represents your organisation's practice to ensure the quality of digital government services on a scale of 1 to 7, where 1 = 'Never' and 7 = 'Frequently'.*

Details of the assessed digital government service*:  <i>*Example: License application, Sales tax registration, hotel registration etc</i>	Name of digital service assessed (state any one service type only):  <hr/> <hr/> URL of the digital service:  <hr/>
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		<i><b>Frequently:</b> periodical assessment and monitoring as stipulated in the organisation's SOPs and quality standards</i>							
		<i><b>Never</b> <span style="float: right;"><b>Frequently</b></span></i>							
	<b><u>Continuous internal assessment</u></b> is performed on the following quality criteria of our organisation's digital service, so that it...								
1.	has clear and easy to navigate structure. (EF)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
2.	has search engine or tool that is effective. (EF)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
3.	has well organised site map. (EF)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
4.	provides accessibility whenever users need it. (R)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
5.	demonstrates performance that can promote confidence among the users. (AT)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
6.	works properly with any type of web browser. (R)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
7.	performs the service successfully upon first request. (R)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
8.	enables pages to load in reasonable time. (R)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
9.	enables fast download of the forms and other documents. (R)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
10.	is well customised to individual users' needs such as customised search functions by keywords, agencies etc. (EF)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			

11.	requests only necessary users' personal data for authentication purpose. (AT)	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
12.	ensures the safety of users' data obtained while interacting with the system (e.g data is archived securely; data is only used for the reasons submitted etc). (AT)	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
13.	provides sufficiently detailed information including on completing transaction. (EF)	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
14.	provides information on the latest approved service standards and policies. (T)	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
15.	provides latest open government datasets for public access via platform such as data.gov.my etc. (T)	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
16.	discloses periodical activity reports pertaining to service performance and customers' satisfaction. (T)	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
17.	discloses important outcome or decisions from the recent meeting, such as ethical board, financial bidding etc. (T)	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
	<b>Constant assessment</b> of our digital service quality is performed as follows:								
		<b>Never</b> <span style="float: right;"><b>Frequently</b></span>							
1	users' problems are solved with sincere interest. (US)	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
2	users receive quick replies for any inquiries or complaints. (US)	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
3	the employees have the knowledge to answer users' questions. (US)	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
4.	the employees have the ability to convey trust and confidence to the service users. (US).	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			

How does your organisation perform internal assessment and control of the digital service to sustain its' quality (exp: internal auditing on a quarterly basis etc)?

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Which aspect of your organisation's digital service need more assessment and monitoring to ensure the quality of the service delivery?

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**PART II: ORGANISATIONAL INTELLIGENCE (OI)**

*Instruction: State your agreement by selecting [ / ] the most appropriate number that represents your organisation's OI practice on a scale of 1 to 7, where 1 = 'Strongly disagree' and 7 = Strongly agree.*

	<b>Top management</b> of my current organisation...	<b>Strongly disagree</b>	<b>Strongly agree</b>
1	share organisation's plans, priorities, and operating results with the employees. (LD)	1	2
		3	4
		5	6
		7	
2	promote openness to change, i.e doing things in new ways. (LD)	1	2
		3	4
		5	6
		7	
3	promotes ethics and integrity within organisation. (LD)	1	2
		3	4
		5	6
		7	
	<b>Managers at all level</b> of my current organisation..	<b>Strongly disagree</b>	<b>Strongly agree</b>
1	demonstrates commitment, enthusiasm, energy and optimism in carrying out their work. (LD)	1	2
		3	4
		5	6
		7	
2	constantly communicate clear performance targets and expectations to the employees. (LD)	1	2
		3	4
		5	6
		7	
3	shows appreciation for knowledge and education as key resources and skills of employees. (LD)	1	2
		3	4
		5	6
		7	
4.	act quickly or decisively to solve unproductive employee's issues (LD)	1	2
		3	4
		5	6
		7	
	Generally, <b>employees at all levels</b> of my current organisation...	<b>Strongly disagree</b>	<b>Strongly agree</b>
1.	understand the overall strategic concept of the organisation. (SF)	1	2
		3	4
		5	6
		7	
2.	express a sense of pride in belonging to the organisation. (H)	1	2
		3	4
		5	6
		7	

3.	express sense of belonging with organisation. (SF)	1 2 3 4 5 6 7
4.	express a strong sense of partnership with organisation. (SF)	1 2 3 4 5 6 7
5.	are willing to put in extra effort to help the organisation in achieving its goals. (H)	1 2 3 4 5 6 7
6.	express optimism regarding their career growth with the organisation (H).	1 2 3 4 5 6 7
7.	believe that management has their best interests at heart. (H)	1 2 3 4 5 6 7
8.	are allowed to question the accepted way of doing things. (AC)	1 2 3 4 5 6 7
9.	understand clearly their roles, responsibilities and expected contributions. (PP)	1 2 3 4 5 6 7
10.	feel their work contributes to the success of the organisation. (PP)	1 2 3 4 5 6 7
11.	believe their rewards and career successes are determined by their job performance. (PP)	1 2 3 4 5 6 7
12.	receive feedback about their performance or recognition of their contributions. (PP)	1 2 3 4 5 6 7
13.	help and support one another in getting work done, despite from different departments. (SF)	1 2 3 4 5 6 7
14.	inculcate the culture of sharing knowledge and important organisation's information. (KD).	1 2 3 4 5 6 7
15.	believe in the organisation's prospects for success, as to how it fulfils the stakeholders' and citizens' expectation. (SF)	1 2 3 4 5 6 7
	My current organisation <b><u>carries out these activities:</u></b>	<b>Strongly disagree</b> <b>Strongly agree</b>
1.	initiation of programs to support either continuous learning or career development for all employees (KD)..	1 2 3 4 5 6 7
2.	encouragement of innovation by experimenting with new ideas or better ways to do their jobs (AC).	1 2 3 4 5 6 7
3.	effective process for developing its strategic thinkers in the organisational (SV).	1 2 3 4 5 6 7

4.	engagement activities with all stakeholders to consult on issues relating to policies and strategies (ESE).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
5.	ongoing strategic discussion at all levels on the organisation's internal and external environment to meet the current challenges (SV).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
6.	systematic process for environmental scanning to identify key trends, threats, and opportunities of the organisation (SV).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
7.	process of identification of key stakeholders to obtain inputs for designing credible organisational strategy (ESE).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
8.	annual strategic review, involving leaders at all level to reconsider the organisation's environment, direction, and strategies (SV).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
9.	Inputs obtained from stakeholders are brought to management meeting etc to continually study the latest ideas and trends related to the core business (ESE).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7

My current organisation **exhibits these traits:**

		<b>Strongly disagree</b>	<b>Strongly agree</b>
1.	availability of meaningful and convincing vision, mission, or principles for guiding the organisation in making key decisions. (SV)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7	
2.	availability of policies, rules, and regulations which are in line with organisation's core priorities. (ALC)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7	
3.	overall structure of the organisation which is appropriate to its core business. (ALC)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7	
4.	availability of organisational missions that are aligned to facilitate coordination between units (ALC)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7	
5.	authority and responsibility that are delegated to multiple level of the organisation. (ALC)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7	
6.	availability of work procedures that facilitate employee's performance rather than delaying it. (ALC)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7	
7.	organisational boundaries that allow employees to share ideas and information rather than keeping it to themselves. (KD)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7	



8.	bureaucratic obstructions such as rules for the sake of rules, outdated policies and procedures are kept to a minimum. (AC)	1   2   3   4   5   6   7
9.	evolving service delivery that keeps up with the changing demands of the organisation's environment. (AC)	1   2   3   4   5   6   7
10.	availability of platforms such as e-participation etc to obtain public opinions on variety of issues regarding public service delivery. (ESE)	1   2   3   4   5   6   7
11.	existence of decisions made on issues relating to policies and strategies based on the outcome from consultations with the stakeholders. (ESE)	1   2   3   4   5   6   7
12.	availability of information systems and tools that enable the employees in doing their jobs effectively, i.e to add value to the customers. (ALC)	1   2   3   4   5   6   7
13.	existence of information systems and tools that support the availability and free flow of useful operating information. (KD)	1   2   3   4   5   6   7

Which aspects of OI practice above need to be improved the most to heighten your organisation's digital government service quality (exp: leadership, knowledge sharing, goal setting etc)?

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State the reasons for your suggestions above:

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**PART III: OCCUPATIONAL STRESS**

*Instruction: Please select [ / ] the most appropriate number that best fits your own feeling about your job on a scale of 1 to 7, where 1 = 'Strongly disagree' and 7 = 'Strongly agree'.*

	These statements below describe <b><u>the feeling about my current job.</u></b>	<b>Strongly disagree</b>	<b>Strongly agree</b>					
1	I have felt fidgety or nervous as a result of my job.	1	2	3	4	5	6	7
2	Working here makes it hard to spend enough time with my family.	1	2	3	4	5	6	7
3	My job bothers me more than it should.	1	2	3	4	5	6	7
4	I am not able to see my work from a bigger perspective, for I spend too much time at work.	1	2	3	4	5	6	7
5	There are lots of times when my job drives me right up the wall.	1	2	3	4	5	6	7
6	Working here leaves little time for other activities.	1	2	3	4	5	6	7
7	Sometimes when I think about my job, I get a tight feeling in my chest.	1	2	3	4	5	6	7
8	I frequently get the feeling I am married to the organisation.	1	2	3	4	5	6	7
9	I have too much work and too little time to do it.	1	2	3	4	5	6	7
10	I feel guilty when I take time off from job.	1	2	3	4	5	6	7
11	I sometimes worry about the phone calls or messages received at home as they might be job-related.	1	2	3	4	5	6	7
12	I feel like I never have a day off.	1	2	3	4	5	6	7
13	Too many employees at my level in the current organisation get burned out by job demands.	1	2	3	4	5	6	7

Based on your experience, which OI aspects (Part II) need to be improved the most to ensure the employees' psychological wellbeing in your organisation (exp: leadership, employees' engagement, goal setting etc)?

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Are there any current OI practices in Part II above can be sustained, as they contribute to employees' psychological wellbeing in your organisation (exp: leadership, employees' engagement, goal setting etc)?

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**PART IV: DEMOGRAPHIC PROFILES**

**Instructions:** Please tick [ / ] in the box given

1.	Gender :	Female [ ] Male [ ]
3.	Length of service in the current organisation :	_____ years _____ months
4.	Service scheme :	Information Technology [ ] Administrative and Diplomatic [ ] Others (please state) [ ]
3.	Service group <i>Kumpulan perkhidmatan</i> :	Top Management Group (Premier Grade C and above) [ ] Management & Professional [ ] Support Group [ ]
4.	Agency's name :	
5.	Unit/ Team (Project manager, technical support, licensing etc) :	

Do you have any general comments about this survey (e.g length of the survey etc)?

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-----The End-----

**DEFINISI UTAMA**

<b>TERMINOLOGI</b>	<b>DEFINISI</b>
<b>Kualiti Perkhidmatan Digital Kerajaan</b>	sejauh mana prestasi penyampaian perkhidmatan dikekalkan melalui sokongan proses dalaman seperti pemantauan dan penilaian berterusan, untuk memastikan carian maklumat dan transaksi dalam talian serta komunikasi antara penyedia perkhidmatan dan pengguna adalah berkesan dan cekap.
<b>Kepintaran Organisasi</b>	Sejauh mana organisasi menggembelng semua potensi dan kemampuannya sebagai penggerak utama bagi mencapai misinya
<b>Tekanan Pekerjaan</b>	perasaan individu yang perlu menyimpang dari fungsi normal atau keinginan diri di tempat kerja disebabkan peranan, peluang, kekangan, atau tuntutan untuk mencapai hasil kerja yang penting.
<b>Pengurusan Atasan</b>	Ketua di peringkat tertinggi kenemterian atau jabatan, iaitu Ketua Setiausaha, Timbalan Ketua Setiausaha, Ketua Pengarah dan Timbalan Ketua Pengarah, Pengarah dan Setiausaha Bahagian.
<b>Pengurus</b>	Pengurus di semua peringkat jabatan/ bahagian termasuk Pengarah dan Setiausaha Bahagian, ketua seksyen dan unit.
<b>Organisasi</b>	Jabatan/ bahagian sekarang di mana penyedia perkhidmatan disandangkan (contoh: Bahagian Pelesenan, Bahagian ICT)

**BAHAGIAN 1: KUALITI PERKHIDMATAN DIGITAL KERAJAAN**

Arahan: Sila pilih [ / ] angka paling sesuai yang menggambarkan amalan organisasi anda dalam memastikan kualiti perkhidmatan digital kerajaan berdasarkan skala 1 hingga 7, di mana 1 = 'Tidak Pernah' and 7 = 'Kerap'.

Maklumat perkhidmatan digital kerajaan yang dinilai:  <i>Contoh: Permohonan Lesen, Pendaftaran cukai jualan, pendaftaran hotel dsb</i>	Nama perkhidmatan digital yang dinilai (nyatakan mana-mana satu jenis perkhidmatan sahaja):  <hr/> <hr/> URL perkhidmatan digital:  <hr/>
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		<i>*Kerap: penilaian dan pemantauan secara berkala seperti yang ditetapkan dalam prosedur kerja (SOP) dan kualiti standard organisasi</i>  <b>Tidak Pernah</b> <span style="float: right;"><b>Kerap*</b></span>							
1.	mempunyai struktur yang jelas dan mudah dilayari. (EF)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
2.	mempunyai enjin carian atau peralatan yang berkesan. (EF)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
3.	mempunyai peta laman yang teratur. (EF)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
4.	menyediakan akses pada bila-bila masa ianya diperlukan oleh pengguna. (R)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
5.	menunjukkan prestasi yang dapat meningkatkan keyakinan pengguna. (AT)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
6.	berfungsi dengan baik dengan semua jenis pelayar laman sesawang. (R)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
7.	memberikan perkhidmatan dengan jayanya berdasarkan permintaan kali pertama. (R)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
8.	mbolehkan halaman dipaparkan dalam masa yang munasabah. (R)	<table border="1" style="display: inline-table;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			

9.	membolehkan borang dan dokumen lain dimuat turun dengan pantas. (R)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
10.	disesuaikan mengikut keperluan pengguna seperti fungsi carian yang disesuaikan dengan kata kunci, agensi dll. (EF)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
11.	hanya meminta data peribadi pengguna yang diperlukan untuk tujuan pengesahan. (AT)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
12.	memastikan keselamatan data pengguna yang diperoleh ketika berinteraksi dengan sistem (spt data diarkibkan dengan selamat; data digunakan hanya untuk tujuan ianya dikemukakan dsb). (AT)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
13.	menyediakan maklumat terperinci termasuk maklumat untuk menyelesaikan sesuatu urusan. (EF)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
14.	menyediakan maklumat terkini mengenai standard dan polisi perkhidmatan. (T)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
15.	menyediakan set data terbuka kerajaan terkini untuk diakses oleh masyarakat umum melalui platform seperti data.gov.my dll. (T)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
16.	mendedahkan laporan aktiviti berkala berkaitan prestasi perkhidmatan dan kepuasan pelanggan. (T)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
17.	mendedahkan hasil atau keputusan penting dari mesyuarat terkini seperti lembaga etika, pembidaan kewangan dll. (T)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
	<b>Penilaian berterusan</b> ke atas kualiti perkhidmatan digital kami dilaksanakan seperti berikut:	<b>Tidak Pernah</b> <span style="float: right;"><b>Kerap*</b></span>
1	masalah pengguna diselesaikan dengan niat yang ikhlas (US).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
2	pengguna menerima maklumbalas segera bagi sebarang pertanyaan atau aduan. (US)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
3	pekerja mempunyai pengetahuan untuk menjawab soalan pengguna. (US)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7

4.	pekerja berupaya mempamerkan kepercayaan dan keyakinan kepada pengguna perkhidmatan (US)	<table border="1"> <tr> <td data-bbox="979 215 1050 253">1</td> <td data-bbox="1050 215 1120 253">2</td> <td data-bbox="1120 215 1190 253">3</td> <td data-bbox="1190 215 1260 253">4</td> <td data-bbox="1260 215 1331 253">5</td> <td data-bbox="1331 215 1401 253">6</td> <td data-bbox="1401 215 1471 253">7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			

Bagaimanakah organisasi anda membuat penilaian dan kawalan dalaman perkhidmatan digital untuk mengekalkan kualiti yang mampan (contoh: audit dalaman setiap suku tahun dsb)?

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Apakah aspek perkhidmatan digital organisasi anda yang memerlukan lebih pemantauan dan penilaian untuk memastikan kualiti penyampaian perkhidmatan?

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**BAHAGIAN II: KEPINTARAN ORGANISASI (OI)**

Arahan: Sila nyatakan [ / ] persetujuan anda dengan memilih angka paling sesuai yang menggambarkan penilaian anda berhubung amalan OI oleh organisasi anda berdasarkan skala 1 hingga 7, di mana 1 = 'Sangat tidak bersetuju' and 'Sangat bersetuju'.

	<b><u>Pengurusan atasan</u></b> organisasi saya...	<b>Sangat tidak bersetuju</b>	<b>Sangat bersetuju</b>
1	berkongsi perancangan, keutamaan dan hasil pengoperasian dengan pekerja. (LD)	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
2	menggalakkan keterbukaan untuk berubah, iaitu melaksanakan perkara-perkara dengan kaedah baharu. (LD)	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
3	menggalakkan pembudayaan etika dan integriti dalam organisasi. (LD)	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
	<b><u>Pengurus di semua peringkat</u></b> organisasi saya sekarang...	<b>Sangat tidak bersetuju</b>	<b>Sangat bersetuju</b>
1	menunjukkan komitmen, minat, semangat dan sifat positif dalam melaksanakan tugas. (LD)	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
2	sering menyampaikan sasaran dan ekspektasi prestasi kerja yang jelas kepada pekerja. (LD)	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
3	menghargai pengetahuan dan pendidikan sebagai sumber dan kemahiran utama pekerja. (LD)	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
4.	bertindak dengan cepat atau tegas dalam menyelesaikan masalah pekerja yang tidak produktif. (LD)	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
	Secara amnya, <b><u>pekerja di semua peringkat</u></b> dalam organisasi saya...	<b>Sangat tidak bersetuju</b>	<b>Sangat bersetuju</b>
1.	memahami konsep strategi organisasi secara menyeluruh. (SF)	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
2.	menyatakan rasa bangga terhadap organisasi. (H)	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7
3.	menyatakan rasa kekitaan dengan organisasi. (SF)	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7

4.	menunjukkan rasa perkongsian yang tinggi dengan organisasi. (SF)	1   2   3   4   5   6   7
5.	bersedia berusaha sedaya upaya untuk membantu organisasi mencapai matlamatnya. (H)	1   2   3   4   5   6   7
6.	menyatakan keyakinan terhadap perkembangan kerjaya mereka dengan organisasi. (H)	1   2   3   4   5   6   7
7.	mempercayai bahawa pengurusan menjaga kepentingan mereka secara terbaik (H)	1   2   3   4   5   6   7
8.	dibenarkan untuk mempersoalkan pelaksanaan tugas mengikut amalan kebiasaan. (AC)	1   2   3   4   5   6   7
9.	memahami dengan jelas peranan, tanggungjawab dan sumbangan yang diharapkan. (PP)	1   2   3   4   5   6   7
10.	berasaskan bahawa kerja mereka menyumbang kepada kejayaan organisasi. (PP)	1   2   3   4   5   6   7
11.	percaya bahawa ganjaran dan kejayaan kerjaya mereka ditentukan oleh prestasi kerja mereka. (PP)	1   2   3   4   5   6   7
12.	menerima maklum balas mengenai prestasi kerja atau pengiktirafan atas sumbangan mereka. (PP)	1   2   3   4   5   6   7
13.	Saling bantu membantu dan menyokong antara satu sama lain dalam menyelesaikan kerja, walaupun dari pelbagai jabatan. (SF)	1   2   3   4   5   6   7
14.	Membudayakan perkongsian pengetahuan dan maklumat penting organisasi. (KD).	1   2   3   4   5   6   7
15.	mempercayai prospek kejayaan organisasi, iaitu bagaimana harapan pemegang taruh dan rakyat dapat dipenuhi. (SF)	1   2   3   4   5   6   7

	Organisasi saya sekarang <b><u>menjalankan aktiviti-aktiviti berikut:</u></b>	<b>Sangat tidak bersetuju</b> <span style="float: right;"><b>Sangat bersetuju</b></span>							
1.	Memulakan program untuk menyokong pembelajaran berterusan atau pembangunan kerjaya untuk semua pekerja.	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
2.	menganjurkan inovasi dengan menguji idea baharu atau kaedah lebih baik dalam melaksanakan tugas mereka.	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
3.	proses efektif untuk membangunkan pemikir strategik dalam organisasi.	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
4.	melaksanakan aktiviti libat urus dengan semua pemegang taruh untuk berunding mengenai isu-isu berkaitan dengan dasar dan strategi.	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
5.	perbincangan strategik berterusan melibatkan semua peringkat mengenai persekitaran dalaman dan luaran organisasi bagi menghadapi cabaran semasa.	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
6.	proses tinjauan persekitaran yang sistematik untuk mengenal pasti trend utama, ancaman, dan peluang organisasi.	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
7.	proses mengenalpasti pemegang taruh utama bagi mendapatkan input untuk merancang strategi organisasi yang diyakini.	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
8.	semakan semula strategi secara tahunan, yang melibatkan semua peringkat pemimpin untuk mempertimbangkan semula persekitaran, hala tuju, dan strategi organisasi..	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
9.	Input yang diperolehi dari pemegang taruh dibawa ke mesyuarat pengurusan dll untuk mengkaji idea dan trend terkini berkaitan fungsi teras secara berterusan.	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			

	Organisasi saya sekarang <b><u>mempunyai ciri-ciri berikut:</u></b>	Sangat tidak bersetuju <span style="float: right;">Sangat bersetuju</span>							
1.	wujudnya visi, misi, atau prinsip-prinsip untuk memberi panduan kepada organisasi dalam membuat keputusan penting (SV)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
2.	wujudnya dasar dan peraturan yang selari dengan keutamaan teras organisasi. (ALC)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
3.	struktur keseluruhan organisasi yang bersesuaian dengan fungsi utamanya. (ALC)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
4.	wujudnya misi organisasi yang selari untuk mempermudah penyelarasan di antara unit. (ALC)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
5.	Kuasa dan tanggungjawab yang diperturunkan ke pelbagai peringkat dalam organisasi.	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
6.	wujudnya prosedur kerja yang mempermudah pencapaian prestasi pekerja tanpa melenghakkannya. (ALC)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
7.	batasan organisasi yang membolehkan pekerja berkongsi idea dan maklumat daripada menyimpannya sendiri. (KD)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
8.	halangan birokrasi seperti peraturan yang tidak lagi diperlukan, dasar dan prosedur lapuk berada di tahap minima. (AC)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
9.	penyampaian perkhidmatan yang berkembang selari dengan perubahan keperluan persekitaran organisasi. (AC)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
10.	ketersediaan platform seperti e-penyertaan dll untuk mendapatkan pendapat masyarakat umum mengenai pelbagai isu mengenai penyampaian perkhidmatan awam. (ESE)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
11.	terdapatnya keputusan yang dibuat mengenai isu-isu berkaitan dasar dan strategi hasil daripada perundingan dengan pihak pemegang taruh. (ESE)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			
12.	ketersediaan sistem maklumat dan kelengkapan yang membolehkan pekerja menjalankan tugas mereka dengan berkesan, iaitu untuk menambah nilai kepada pelanggan. (ALC)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> </table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			

13.	terdapatnya sistem maklumat dan peralatan yang menyokong ketersediaan dan aliran bebas maklumat pengoperasian yang berguna. (KD)	<table border="1"><tr><td data-bbox="933 215 997 250">1</td><td data-bbox="997 215 1061 250">2</td><td data-bbox="1061 215 1125 250">3</td><td data-bbox="1125 215 1189 250">4</td><td data-bbox="1189 215 1252 250">5</td><td data-bbox="1252 215 1316 250">6</td><td data-bbox="1316 215 1380 250">7</td></tr></table>	1	2	3	4	5	6	7
1	2	3	4	5	6	7			

Apakah aspek amalan OI yang paling memerlukan penambahbaikan untuk meningkatkan kualiti perkhidmatan digital kerajaan organisasi anda (contoh: kepimpinan, perkongsian pengetahuan, penetapan sasaran dll)?

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Nyatakan sebab-sebab bagi cadangan anda di atas:

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**BAHAGIAN III: TEKANAN PEKERJAAN**

Arahan: Sila pilih [ / ] angka yang paling menggambarkan perasaan anda mengenai kerja anda berdasarkan skala 1 hingga 7, di mana 1 = 'Sangat tidak bersetuju' dan 7= 'Sangat bersetuju'

	Pernyataan di bawah <b><u>menggambarkan perasaan saya terhadap kerja saya sekarang.</u></b>	Sangat tidak bersetuju	Sangat bersetuju					
1	Saya berasa gelisah atau gementar disebabkan kerja saya.	1	2	3	4	5	6	7
2	Bekerja di sini menyukarkan saya untuk meluangkan masa yang mencukupi bersama keluarga.	1	2	3	4	5	6	7
3	Kerja saya merunsingkan saya lebih daripada yang sepatutnya.	1	2	3	4	5	6	7
4	Saya tidak dapat melihat kerja saya dari perspektif lebih luas, kerana saya menghabiskan terlalu banyak masa di tempat kerja.	1	2	3	4	5	6	7
5	Kerja saya seringkali menyakitkan hati saya.	1	2	3	4	5	6	7
6	Bekerja di sini menjadikan saya mempunyai masa yang sedikit untuk aktiviti lain.	1	2	3	4	5	6	7
7	Kadangkala apabila saya memikirkan tentang kerja, saya berasa sesak dada.	1	2	3	4	5	6	7
8	Saya sering berasakan bahawa saya terlalu terikat dengan organisasi.	1	2	3	4	5	6	7
9	Saya mempunyai terlalu banyak kerja dan masa yang terlalu singkat untuk melakukannya.	1	2	3	4	5	6	7
10	Saya berasa bersalah apabila mengambil cuti daripada kerja.	1	2	3	4	5	6	7
11	Kadangkala saya bimbang apabila menerima panggilan telefon atau mesej di rumah kerana ianya mungkin berkaitan kerja.	1	2	3	4	5	6	7

12	Saya berasa seolah-olah saya tidak pernah bercuti.	1	2	3	4	5	6	7
13	Terlalu ramai pekerja pada peringkat saya di organisasi sekarang mengalami kelesuan disebabkan tuntutan kerja.	1	2	3	4	5	6	7

Berdasarkan pengalaman anda, aspek OI yang manakah (Bahagian II) paling memerlukan penambahbaikan untuk memastikan kesejahteraan psikologi pekerja dalam organisasi anda (contoh: kepimpinan, keterlibatan pekerja, penetapan sasaran kerja dsb)?

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Apakah amalan OI (Bahagian II) yang boleh dikekalkan kerana ianya menyumbang kepada kesejahteraan psikologi pekerja di organisasi anda (contoh: kepimpinan, keterlibatan pekerja, penetapan sasaran kerja dsb)?

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**BAHAGIAN IV: PROFIL DEMOGRAFI**

**Arahan:** Tandakan [ / ] ruangan berkaitan.

1.	Jantina :	Perempuan [ ] Lelaki [ ]
3.	Tempoh perkhidmatan di organisasi sekarang	_____ tahun _____ bulan
4.	Skim perkhidmatan	Teknologi Maklumat [ ] Tadbir dan Diplomatik [ ] Lain-lain (Sila nyatakan) [ ]
3.	Kumpulan perkhidmatan	Pengurusan Atasan (Gred JUSA C dan ke atas) [ ] Pengurusan & Profesional [ ] Kumpulan Sokongan [ ]
4.	Nama agensi	
5.	Unit/ pasukan (pengurus projek, sokongan teknikal, pelesenan dsb)	

Adakah anda mempunyai sebarang komen umum mengenai soal selidik ini (contoh: bil. soalan dsb)?

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-----Tamat-----



## HTMT Inference Analysis Outcome from Pilot Study Data

	Original Sample (O)	Sample Mean (M)	Bias	5.00%	95.00%
Knowledge Deployment -> Appetite for Change	1.025	1.027	0.002	0.992	1.051
Shared Fate _ -> Heart	1.006	1.006	0.000	0.990	1.021
Time Stress -> Anxiety	0.997	0.997	0.000	0.967	1.020
Performance Pressure -> Appetite for Change	0.965	0.962	-0.003	0.917	1.008
Strategic vision -> Knowledge Deployment	0.978	0.977	-0.001	0.935	1.005
Shared Fate _ -> Appetite for Change	0.954	0.956	0.002	0.893	0.997
Knowledge Deployment -> Alignment & Congruence	0.974	0.975	0.001	0.947	0.996
Performance Pressure -> Knowledge Deployment	0.968	0.966	-0.001	0.928	0.995
Shared Fate _ -> Knowledge Deployment	0.961	0.961	0.000	0.921	0.991
Appetite for Change -> Alignment & Congruence	0.951	0.953	0.002	0.878	0.991
Knowledge Deployment -> Heart	0.951	0.950	-0.001	0.905	0.989
Shared Fate _ -> Performance Pressure	0.961	0.964	0.002	0.929	0.989
Heart -> Appetite for Change	0.948	0.950	0.003	0.883	0.987
Performance Pressure -> Heart	0.948	0.950	0.002	0.902	0.985
Strategic vision -> Appetite for Change	0.943	0.946	0.002	0.883	0.98
Efficiency -> Assurance and Trust	0.918	0.921	0.003	0.802	0.979
Reliability -> Assurance and Trust	0.928	0.925	-0.003	0.855	0.971
Reliability -> Efficiency	0.911	0.908	-0.002	0.851	0.957
Strategic vision -> Alignment & Congruence	0.920	0.919	-0.001	0.877	0.955
Leadership_ -> Knowledge Deployment	0.909	0.907	-0.002	0.863	0.947
Users Support -> Assurance and Trust	0.894	0.889	-0.005	0.808	0.942
Transparency -> Reliability	0.807	0.810	0.003	0.642	0.937
Strategic vision -> Performance Pressure	0.872	0.869	-0.003	0.795	0.924
Strategic vision -> Leadership_	0.877	0.875	-0.002	0.824	0.923
Users Support -> Reliability	0.855	0.850	-0.006	0.771	0.922
Leadership_ -> Appetite for Change	0.871	0.871	0.000	0.805	0.921
Strategic vision -> Shared Fate _	0.867	0.863	-0.004	0.797	0.921
Performance Pressure -> Leadership_	0.869	0.866	-0.003	0.812	0.916
Shared Fate _ -> Leadership_	0.859	0.859	0.000	0.794	0.916
Performance Pressure -> Alignment & Congruence	0.864	0.862	-0.002	0.789	0.914
Strategic vision -> Heart	0.855	0.851	-0.004	0.775	0.912
Transparency -> Assurance and Trust	0.820	0.814	-0.006	0.715	0.908
Shared Fate _ -> Alignment & Congruence	0.842	0.841	-0.001	0.758	0.902
Leadership_ -> Alignment & Congruence	0.841	0.840	-0.001	0.763	0.899
Heart -> Alignment & Congruence	0.841	0.841	0.000	0.761	0.897
Leadership_ -> Heart	0.842	0.84	-0.001	0.769	0.893
Reliability -> Performance Pressure	0.815	0.816	0.001	0.726	0.88
Reliability -> Heart	0.798	0.802	0.004	0.699	0.865
Reliability -> Knowledge Deployment	0.785	0.782	-0.003	0.685	0.861
Transparency -> Efficiency	0.710	0.714	0.004	0.495	0.855

Performance Pressure -> Assurance and Trust	0.781	0.787	0.006	0.670	0.853
Shared Fate _ -> Reliability	0.784	0.787	0.003	0.689	0.851
Users Support -> Transparency	0.730	0.723	-0.006	0.563	0.850
Heart -> Assurance and Trust	0.781	0.789	0.008	0.672	0.850
Users Support -> Efficiency	0.775	0.769	-0.006	0.660	0.848
Users Support -> Heart	0.778	0.783	0.005	0.694	0.846
Knowledge Deployment -> Assurance and Trust	0.762	0.764	0.002	0.636	0.846
Users Support -> Shared Fate _	0.789	0.794	0.005	0.704	0.844
Reliability -> Appetite for Change	0.775	0.773	-0.001	0.662	0.844
Users Support -> Knowledge Deployment	0.777	0.778	0.002	0.681	0.843
Users Support -> Performance Pressure	0.776	0.781	0.005	0.670	0.838
Assurance and Trust -> Appetite for Change	0.736	0.739	0.004	0.602	0.837
Efficiency -> Appetite for Change	0.753	0.751	-0.002	0.664	0.836
Shared Fate _ -> Assurance and Trust	0.764	0.771	0.007	0.657	0.835
Users Support -> Appetite for Change	0.757	0.761	0.004	0.655	0.826
Users Support -> Alignment & Congruence	0.750	0.751	0.001	0.663	0.823
Knowledge Deployment -> Efficiency	0.730	0.730	0.000	0.644	0.818
Performance Pressure -> Efficiency	0.750	0.753	0.003	0.659	0.817
Shared Fate _ -> Efficiency	0.746	0.749	0.003	0.663	0.817
Reliability -> Alignment & Congruence	0.708	0.705	-0.003	0.599	0.806
Heart -> Efficiency	0.729	0.735	0.006	0.631	0.805
Assurance and Trust -> Alignment & Congruence	0.692	0.691	-0.001	0.572	0.797
Reliability -> Leadership_	0.694	0.697	0.003	0.571	0.791
Leadership_ -> Assurance and Trust	0.713	0.718	0.005	0.592	0.790
Users Support -> Strategic vision	0.697	0.697	0.000	0.589	0.787
Users Support -> Leadership_	0.706	0.709	0.003	0.626	0.777
Strategic vision -> Reliability	0.676	0.672	-0.004	0.549	0.772
Strategic vision -> Assurance and Trust	0.678	0.678	-0.001	0.539	0.768
Transparency -> Appetite for Change	0.595	0.607	0.012	0.344	0.763
Transparency -> Knowledge Deployment	0.559	0.568	0.010	0.327	0.753
Efficiency -> Alignment & Congruence	0.663	0.660	-0.003	0.568	0.749
Strategic vision -> Efficiency	0.637	0.635	-0.002	0.544	0.735
Transparency -> Shared Fate _	0.565	0.573	0.008	0.351	0.730
Leadership_ -> Efficiency	0.655	0.660	0.005	0.549	0.729
Transparency -> Strategic vision	0.548	0.558	0.010	0.320	0.723
Transparency -> Alignment & Congruence	0.534	0.542	0.008	0.333	0.722
Transparency -> Performance Pressure	0.536	0.547	0.011	0.332	0.710
Transparency -> Leadership_	0.536	0.549	0.013	0.351	0.702
Transparency -> Heart	0.534	0.544	0.011	0.330	0.694
Heart -> Anxiety	0.456	0.456	0.000	0.321	0.565
Users Support -> Anxiety	0.445	0.451	0.006	0.311	0.555
Time Stress -> Heart	0.448	0.447	-0.001	0.312	0.541
Shared Fate _ -> Anxiety	0.413	0.411	-0.001	0.278	0.54
Users Support -> Time Stress	0.425	0.428	0.004	0.294	0.534
Knowledge Deployment -> Anxiety	0.418	0.419	0.001	0.290	0.526

Anxiety -> Alignment & Congruence	0.416	0.421	0.005	0.278	0.526
Time Stress -> Shared Fate _	0.412	0.410	-0.003	0.270	0.517
Time Stress -> Knowledge Deployment	0.400	0.399	-0.001	0.269	0.503
Time Stress -> Alignment & Congruence	0.389	0.390	0.001	0.246	0.503
Performance Pressure -> Anxiety	0.394	0.398	0.004	0.275	0.499
Efficiency -> Anxiety	0.373	0.378	0.005	0.230	0.488
Assurance and Trust -> Anxiety	0.365	0.371	0.006	0.214	0.484
Leadership_ -> Anxiety	0.360	0.360	0.000	0.236	0.473
Time Stress -> Performance Pressure	0.372	0.375	0.002	0.231	0.472
Time Stress -> Efficiency	0.355	0.355	0.000	0.211	0.469
Time Stress -> Reliability	0.349	0.355	0.006	0.202	0.464
Time Stress -> Appetite for Change	0.346	0.351	0.005	0.179	0.463
Time Stress -> Assurance and Trust	0.344	0.347	0.002	0.193	0.459
Reliability -> Anxiety	0.347	0.357	0.010	0.197	0.459
Appetite for Change -> Anxiety	0.342	0.349	0.007	0.191	0.455
Time Stress -> Leadership_	0.319	0.320	0.001	0.182	0.441
Strategic vision -> Anxiety	0.323	0.325	0.002	0.207	0.438
Time Stress -> Strategic vision	0.304	0.305	0.001	0.191	0.423
Transparency -> Anxiety	0.175	0.223	0.048	0.085	0.237
Transparency -> Time Stress	0.165	0.201	0.036	0.078	0.231

## Cross-loadings of Items With the Constructs - Actual Study Data

	ALC	ANX	AC	AT	EFF	H	KD	LD	PP	R	S	SV	TS	T	US
AC1	0.559	-0.158	0.792	0.339	0.391	0.659	0.645	0.664	0.688	0.36	0.641	0.616	-0.176	0.346	0.303
AC2	0.701	-0.211	0.824	0.419	0.451	0.679	0.768	0.674	0.700	0.424	0.668	0.834	-0.226	0.401	0.442
AC3	0.566	-0.147	0.73	0.267	0.343	0.474	0.570	0.475	0.519	0.267	0.493	0.513	-0.170	0.311	0.285
AC4	0.789	-0.202	0.872	0.417	0.473	0.674	0.784	0.693	0.684	0.436	0.685	0.760	-0.221	0.390	0.436
ALC1	0.885	-0.205	0.717	0.455	0.477	0.660	0.761	0.688	0.691	0.484	0.67	0.806	-0.202	0.400	0.47
ALC2	0.883	-0.245	0.712	0.432	0.454	0.677	0.728	0.644	0.648	0.444	0.681	0.763	-0.246	0.373	0.433
ALC3	0.896	-0.223	0.727	0.411	0.486	0.669	0.791	0.661	0.675	0.444	0.672	0.795	-0.224	0.391	0.443
ALC4	0.889	-0.195	0.732	0.388	0.452	0.654	0.797	0.647	0.686	0.432	0.68	0.759	-0.258	0.4	0.451
ALC5	0.89	-0.266	0.754	0.386	0.436	0.701	0.785	0.671	0.726	0.377	0.712	0.776	-0.296	0.339	0.387
ANX1	-0.182	0.778	-0.184	-0.161	-0.183	-0.172	-0.16	-0.192	-0.168	-0.151	-0.192	-0.177	0.599	-0.18	-0.162
ANX2	-0.262	0.882	-0.232	-0.192	-0.188	-0.292	-0.257	-0.264	-0.28	-0.161	-0.289	-0.238	0.796	-0.188	-0.184
ANX3	-0.258	0.85	-0.218	-0.139	-0.156	-0.283	-0.205	-0.219	-0.241	-0.127	-0.233	-0.226	0.753	-0.159	-0.179
ANX4	-0.196	0.848	-0.149	-0.121	-0.132	-0.201	-0.158	-0.169	-0.211	-0.143	-0.186	-0.187	0.784	-0.141	-0.149
ANX5	-0.071	0.634	-0.07	-0.087	-0.095	-0.117	-0.047	-0.065	-0.128	-0.045	-0.08	-0.081	0.602	-0.091	-0.028
AT1	0.418	-0.19	0.411	0.892	0.772	0.412	0.477	0.409	0.456	0.771	0.43	0.454	-0.175	0.623	0.648
AT2	0.394	-0.142	0.37	0.881	0.749	0.323	0.416	0.36	0.36	0.729	0.375	0.391	-0.162	0.593	0.602
AT3	0.424	-0.145	0.429	0.891	0.751	0.384	0.463	0.393	0.409	0.731	0.417	0.434	-0.167	0.602	0.666
EF1	0.453	-0.189	0.46	0.724	0.888	0.369	0.453	0.426	0.455	0.725	0.412	0.445	-0.178	0.577	0.582
EF2	0.388	-0.132	0.403	0.702	0.85	0.324	0.41	0.319	0.393	0.689	0.356	0.378	-0.135	0.538	0.553
EF3	0.434	-0.171	0.422	0.729	0.872	0.344	0.46	0.357	0.394	0.712	0.374	0.455	-0.168	0.609	0.578
EF4	0.482	-0.201	0.479	0.776	0.875	0.437	0.516	0.392	0.458	0.736	0.461	0.478	-0.213	0.643	0.655
EF5	0.45	-0.107	0.461	0.727	0.794	0.368	0.489	0.418	0.424	0.728	0.429	0.456	-0.125	0.669	0.585
H1	0.672	-0.245	0.665	0.371	0.367	0.872	0.71	0.604	0.678	0.361	0.805	0.686	-0.286	0.368	0.361
H2	0.656	-0.241	0.607	0.34	0.326	0.874	0.663	0.594	0.738	0.34	0.78	0.631	-0.239	0.301	0.354
H3	0.623	-0.222	0.645	0.356	0.38	0.879	0.661	0.542	0.724	0.36	0.707	0.666	-0.232	0.371	0.332
H4	0.667	-0.254	0.762	0.39	0.423	0.836	0.728	0.704	0.763	0.372	0.714	0.725	-0.269	0.352	0.38

KD1	0.723	-0.18	0.71	0.427	0.438	0.722	0.839	0.644	0.732	0.437	0.817	0.736	-0.209	0.375	0.447
KD2	0.687	-0.203	0.713	0.405	0.424	0.655	0.837	0.687	0.689	0.398	0.642	0.778	-0.256	0.386	0.425
KD3	0.682	-0.143	0.691	0.34	0.388	0.592	0.741	0.562	0.576	0.348	0.591	0.615	-0.153	0.265	0.305
KD4	0.765	-0.197	0.737	0.488	0.525	0.653	0.852	0.651	0.665	0.517	0.685	0.734	-0.222	0.407	0.499
LD1	0.588	-0.169	0.615	0.364	0.347	0.549	0.614	0.79	0.578	0.325	0.526	0.605	-0.119	0.319	0.323
LD2	0.587	-0.167	0.63	0.33	0.324	0.524	0.634	0.827	0.579	0.306	0.524	0.619	-0.16	0.249	0.286
LD3	0.624	-0.215	0.59	0.364	0.315	0.547	0.615	0.8	0.578	0.347	0.542	0.615	-0.189	0.249	0.309
LD4	0.644	-0.195	0.674	0.409	0.415	0.626	0.694	0.857	0.677	0.409	0.64	0.663	-0.204	0.334	0.416
LD5	0.652	-0.22	0.665	0.383	0.411	0.637	0.674	0.861	0.674	0.392	0.633	0.655	-0.207	0.345	0.342
LD6	0.615	-0.23	0.677	0.349	0.384	0.592	0.658	0.852	0.667	0.355	0.576	0.65	-0.22	0.306	0.302
LD7	0.589	-0.192	0.678	0.328	0.37	0.615	0.622	0.791	0.66	0.343	0.587	0.629	-0.185	0.339	0.31
PP1	0.686	-0.229	0.701	0.379	0.397	0.773	0.704	0.686	0.847	0.377	0.772	0.679	-0.24	0.323	0.382
PP2	0.708	-0.232	0.687	0.42	0.468	0.756	0.712	0.633	0.862	0.447	0.752	0.706	-0.242	0.405	0.432
PP3	0.597	-0.23	0.651	0.374	0.384	0.63	0.666	0.629	0.849	0.366	0.611	0.669	-0.257	0.328	0.342
PP4	0.653	-0.219	0.729	0.409	0.454	0.712	0.711	0.675	0.863	0.403	0.68	0.722	-0.23	0.359	0.349
R1	0.436	-0.177	0.398	0.758	0.683	0.385	0.468	0.414	0.424	0.848	0.411	0.426	-0.157	0.486	0.618
R2	0.426	-0.118	0.421	0.7	0.73	0.406	0.464	0.386	0.44	0.848	0.454	0.451	-0.142	0.565	0.625
R3	0.45	-0.144	0.434	0.721	0.743	0.362	0.467	0.376	0.417	0.882	0.415	0.438	-0.141	0.591	0.637
R4	0.424	-0.162	0.402	0.73	0.735	0.321	0.453	0.362	0.374	0.899	0.352	0.432	-0.17	0.574	0.598
R5	0.328	-0.084	0.346	0.671	0.694	0.294	0.365	0.285	0.325	0.797	0.33	0.339	-0.111	0.562	0.559
SF1	0.628	-0.206	0.63	0.376	0.379	0.742	0.677	0.567	0.677	0.395	0.84	0.637	-0.245	0.351	0.401
SF2	0.646	-0.246	0.697	0.375	0.391	0.769	0.711	0.623	0.667	0.361	0.847	0.657	-0.254	0.367	0.364
SF3	0.655	-0.245	0.643	0.391	0.406	0.728	0.722	0.585	0.731	0.394	0.888	0.645	-0.286	0.323	0.411
SF4	0.732	-0.192	0.711	0.449	0.47	0.762	0.769	0.639	0.763	0.438	0.865	0.741	-0.223	0.432	0.466
SV1	0.747	-0.23	0.789	0.405	0.458	0.69	0.789	0.681	0.719	0.394	0.676	0.894	-0.247	0.433	0.425
SV2	0.738	-0.174	0.765	0.418	0.433	0.697	0.774	0.669	0.728	0.435	0.664	0.88	-0.174	0.375	0.432
SV3	0.728	-0.208	0.755	0.445	0.46	0.691	0.774	0.678	0.712	0.449	0.681	0.891	-0.211	0.411	0.454
SV4	0.736	-0.164	0.732	0.383	0.389	0.673	0.739	0.662	0.695	0.41	0.684	0.877	-0.172	0.338	0.412
SV5	0.875	-0.249	0.741	0.456	0.509	0.698	0.787	0.683	0.713	0.466	0.7	0.861	-0.265	0.405	0.473
T1	0.454	-0.179	0.469	0.708	0.712	0.368	0.466	0.403	0.41	0.683	0.421	0.472	-0.166	0.862	0.605

T2	0.329	-0.174	0.345	0.573	0.591	0.337	0.348	0.295	0.343	0.531	0.335	0.36	-0.186	0.91	0.49
T3	0.357	-0.171	0.4	0.548	0.585	0.373	0.378	0.295	0.355	0.511	0.38	0.376	-0.175	0.9	0.468
TS1	-0.216	0.718	-0.228	-0.114	-0.107	-0.214	-0.23	-0.196	-0.211	-0.118	-0.225	-0.211	0.776	-0.105	-0.171
TS2	-0.224	0.754	-0.179	-0.141	-0.123	-0.242	-0.204	-0.208	-0.232	-0.116	-0.234	-0.187	0.805	-0.132	-0.175
TS3	-0.201	0.74	-0.173	-0.138	-0.121	-0.247	-0.208	-0.176	-0.189	-0.104	-0.241	-0.179	0.841	-0.121	-0.162
TS4	-0.208	0.734	-0.169	-0.111	-0.13	-0.18	-0.171	-0.126	-0.192	-0.109	-0.22	-0.185	0.821	-0.127	-0.155
TS5	-0.23	0.755	-0.221	-0.134	-0.177	-0.269	-0.23	-0.211	-0.246	-0.122	-0.261	-0.233	0.853	-0.197	-0.14
TS6	-0.187	0.707	-0.167	-0.133	-0.142	-0.195	-0.156	-0.149	-0.196	-0.11	-0.203	-0.161	0.762	-0.156	-0.107
TS7	-0.267	0.698	-0.226	-0.237	-0.241	-0.304	-0.248	-0.184	-0.287	-0.221	-0.283	-0.236	0.843	-0.221	-0.233
TS8	-0.273	0.714	-0.248	-0.183	-0.197	-0.266	-0.248	-0.225	-0.267	-0.172	-0.249	-0.227	0.864	-0.188	-0.197
US1	0.462	-0.193	0.45	0.689	0.654	0.4	0.493	0.389	0.403	0.658	0.436	0.484	-0.225	0.55	0.911
US2	0.455	-0.168	0.432	0.659	0.66	0.369	0.477	0.383	0.412	0.656	0.434	0.476	-0.194	0.602	0.902
US3	0.381	-0.178	0.362	0.58	0.54	0.334	0.409	0.281	0.347	0.573	0.387	0.385	-0.167	0.43	0.888
US4	0.461	-0.137	0.424	0.662	0.63	0.386	0.491	0.367	0.427	0.672	0.457	0.455	-0.158	0.509	0.912

\*Note: AC – Appetite for Change; AT – Assurance & Trust ; EF – Efficiency; , H – Heart; KD – Knowledge Deployment, LD - Leadership, PP – Performance Pressure, R – Reliability , SV – Strategic Vision & Decision Making, TS – Time Stress, T - Transparency, US – Users Support, SF – Shared Fate

## HTMT Inference Values from the Actual Study Data

	Original Sample (O)	Sample Mean (M)	Bias	5.00%	95.00%
Time Stress -> Anxiety	0.972	0.973	0.001	0.942	0.994
Efficiency -> Assurance and Trust	0.960	0.960	0.000	0.923	0.990
Shared Fate -> Heart	0.960	0.960	0.000	0.931	0.981
Performance Pressure -> Heart	0.950	0.949	-0.001	0.917	0.980
Performance Pressure -> Appetite for Change & _Knowledge Deployment	0.939	0.940	0.001	0.882	0.976
Appetite for Change & Knowledge Deployment -> Alignment & Congruence	0.943	0.943	0.000	0.912	0.970
Reliability -> Assurance and Trust	0.941	0.941	0.000	0.903	0.963
Reliability -> Efficiency	0.924	0.923	-0.001	0.855	0.962
Shared Fate -> Performance Pressure	0.929	0.928	-0.001	0.894	0.958
Strategic vision -> Appetite for Change & Knowledge Deployment	0.929	0.930	0.000	0.897	0.954
Shared Fate -> Appetite for Change & Knowledge Deployment	0.905	0.905	0.000	0.872	0.938
Heart -> Appetite for Change & Knowledge Deployment	0.891	0.891	0.000	0.845	0.938
Leadership_ -> Appetite for Change & Knowledge Deployment	0.892	0.891	-0.001	0.835	0.927
Strategic vision -> Performance Pressure	0.881	0.880	-0.001	0.837	0.925
Strategic vision -> Alignment & Congruence	0.879	0.879	0.000	0.831	0.909
Performance Pressure -> Alignment & Congruence	0.853	0.853	0.000	0.793	0.898
Shared Fate -> Alignment & Congruence	0.856	0.856	0.000	0.814	0.895
Performance Pressure -> Leadership	0.848	0.849	0.000	0.793	0.894
Strategic vision -> Heart	0.841	0.839	-0.001	0.795	0.883
Strategic vision -> Shared Fate	0.839	0.838	0.000	0.788	0.879
Heart -> Alignment & Congruence	0.832	0.832	0.000	0.779	0.876
Strategic vision -> Leadership_	0.808	0.806	-0.002	0.757	0.860
Transparency -> Efficiency	0.797	0.799	0.002	0.735	0.853
Users Support -> Assurance and Trust	0.799	0.798	-0.001	0.739	0.851
Transparency -> Assurance and Trust	0.787	0.787	0.000	0.713	0.843
Leadership_ -> Alignment & Congruence	0.795	0.794	-0.001	0.734	0.840
Users Support -> Reliability	0.772	0.771	-0.001	0.712	0.833
Leadership_ -> Heart	0.777	0.776	0.000	0.720	0.829
Shared Fate -> Leadership_	0.773	0.771	-0.002	0.711	0.823
Users Support -> Efficiency	0.747	0.747	0.000	0.677	0.803
Transparency -> Reliability	0.731	0.731	0.000	0.658	0.786
Users Support -> Transparency	0.645	0.643	-0.002	0.579	0.716
Efficiency -> Appetite for Change & Knowledge Deployment	0.612	0.613	0.002	0.537	0.682
Efficiency -> Alignment & Congruence	0.564	0.565	0.002	0.476	0.632
Performance Pressure -> Efficiency	0.555	0.558	0.003	0.474	0.625
Reliability -> Appetite for Change & _Knowledge Deployment	0.560	0.558	-0.002	0.459	0.623
Assurance and Trust -> Appetite for Change & _Knowledge Deployment	0.556	0.554	-0.003	0.470	0.622

Users Support -> Appetite for Change & _Knowledge Deployment	0.545	0.546	0.001	0.453	0.615
Transparency -> Appetite for Change & Knowledge Deployment	0.536	0.536	0.000	0.453	0.609
Shared Fate -> Assurance and Trust	0.527	0.522	-0.004	0.441	0.607
Shared Fate -> Efficiency	0.531	0.530	-0.001	0.447	0.604
Strategic vision -> Efficiency	0.527	0.529	0.002	0.447	0.602
Performance Pressure -> Assurance and Trust	0.527	0.527	-0.001	0.446	0.597
Shared Fate -> Reliability	0.516	0.511	-0.005	0.426	0.597
Users Support -> Shared Fate	0.529	0.527	-0.002	0.448	0.596
Reliability -> Performance Pressure	0.519	0.517	-0.002	0.433	0.594
Reliability -> Alignment & Congruence	0.520	0.518	-0.002	0.414	0.591
Users Support -> Alignment & Congruence	0.524	0.523	-0.001	0.430	0.589
Users Support -> Strategic vision	0.513	0.515	0.001	0.418	0.589
Assurance and Trust -> Alignment & Congruence	0.515	0.512	-0.003	0.425	0.588
Strategic vision -> Assurance and Trust	0.510	0.509	-0.001	0.416	0.584
Strategic vision -> Reliability	0.509	0.509	0.000	0.422	0.582
Leadership_ -> Assurance and Trust	0.488	0.484	-0.004	0.407	0.576
Transparency -> Strategic vision	0.483	0.484	0.001	0.401	0.567
Heart -> Efficiency	0.476	0.478	0.002	0.383	0.564
Leadership_ -> Efficiency	0.485	0.484	-0.001	0.395	0.564
Users Support -> Performance Pressure	0.487	0.487	0.000	0.404	0.563
Transparency -> Shared Fate	0.484	0.483	-0.001	0.392	0.557
Heart -> Assurance and Trust	0.477	0.475	-0.002	0.376	0.553
Transparency -> Performance Pressure	0.474	0.476	0.002	0.386	0.551
Reliability -> Leadership_	0.462	0.459	-0.004	0.369	0.547
Transparency -> Allignment & Congruence	0.474	0.475	0.000	0.381	0.543
Transparency -> Heart	0.458	0.462	0.004	0.363	0.540
Reliability -> Heart	0.459	0.456	-0.003	0.354	0.539
Users Support -> Heart	0.453	0.453	0.001	0.362	0.528
Users Support -> Leadership_	0.425	0.422	-0.002	0.331	0.508
Transparency -> Leadership_	0.414	0.412	-0.002	0.316	0.501
Time Stress -> Heart	0.318	0.322	0.004	0.228	0.400
Heart -> Anxiety	0.319	0.323	0.005	0.218	0.398
Time Stress -> Performance Pressure	0.306	0.309	0.003	0.224	0.391
Time Stress -> Appetite for Change & _Knowledge Deployment	0.289	0.290	0.001	0.188	0.385
Time Stress -> Shared Fate	0.302	0.305	0.002	0.210	0.385
Performance Pressure -> Anxiety	0.306	0.310	0.004	0.209	0.383
Time Stress -> Allignment & Congruence	0.303	0.305	0.002	0.220	0.382
Anxiety -> Allignment & Congruence	0.300	0.302	0.003	0.214	0.373
Shared Fate -> Anxiety	0.288	0.291	0.003	0.201	0.372
Leadership_ -> Anxiety	0.277	0.277	0.000	0.197	0.358
Appetite for Change & _Knowledge Deployment -> Anxiety	0.268	0.270	0.002	0.169	0.353
Strategic vision -> Anxiety	0.248	0.250	0.002	0.162	0.325
Time Stress -> Leadership_	0.237	0.237	0.000	0.157	0.323



Time Stress -> Strategic vision	0.238	0.239	0.002	0.152	0.321
Transparency -> Anxiety	0.228	0.225	-0.003	0.137	0.318
Transparency -> Time Stress	0.211	0.209	-0.001	0.125	0.310
Users Support -> Anxiety	0.221	0.221	0.000	0.125	0.309
Users Support -> Time Stress	0.215	0.216	0.001	0.124	0.307
Efficiency -> Anxiety	0.212	0.212	0.000	0.126	0.307
Assurance and Trust -> Anxiety	0.208	0.205	-0.002	0.122	0.305
Time Stress -> Efficiency	0.198	0.198	0.000	0.122	0.299
Reliability -> Anxiety	0.187	0.185	-0.002	0.110	0.295
Time Stress -> Assurance and Trust	0.201	0.199	-0.003	0.119	0.295
Time Stress -> Reliability	0.174	0.173	-0.001	0.097	0.275

**List of Questions for Experts in Digital Government and Transformation Area**

1. Based on the IPMA diagram, priority factors in terms of importance and performance of OI traits and occupational stress towards the digital government service quality are identified.

In your opinion, how can the findings in each quadrant be explained to improve the digital government service quality?

- 1.1 **Quadrant 1 (Possibly overkill):** ‘Shared Fate’, ‘Leadership’, and ‘Performance Pressure’ are the insignificant predecessors with highest performance but least importance towards digital government service quality.
  - 1.2 **Quadrant 2 (Keep up the good work):** ‘Alignment & Congruence’ and ‘Heart’ are significant predecessors and equally high performance and importance.
  - 1.3 **Quadrant 3 (Low priority):** ‘Appetite for Change & Knowledge Deployment’ and ‘Strategic Vision & Decision Making’ are insignificant and demonstrated similarly low performance and importance on service quality.
  - 1.4 **Quadrant 4 (Focus here):** Occupational Stress’ in Quadrant 4 is the lowest performing significant predecessor with highest importance, in comparison with other predecessors.
2. With regard to occupational stress, it is also interesting that it actually mediates the influence of OI traits collectively on digital government service quality, in general perspective.  
  
Hence, how can we incorporate this finding to improve the digital government service quality?
  3. Any other final comments or suggestions to improve the digital government service quality?

### **List of Questions for Experts in Occupational Stress and Work Psychology Area**

1. Based on the study outcome, OI traits (collectively) have a negative and significant (-0.320) effect on occupational stress. If we look at it specifically:

1.1 employee-oriented OI Traits (Heart, Performance pressure and Shared Fate) has significant effect on occupational stress as opposed to organisation-oriented OI traits?

Do you have any idea, as to why the outcome might appear in such a way?

2. Narrowing down to each OI traits level, only 'Alignment & Congruence' and 'Heart' demonstrated significant and negative effect on occupational stress.

From your point of view, perhaps you can describe why only these 2 traits are significant on occupational stress among the service providers as compared to other traits?

3. So, if we were to relate this to JD-R theory, can employee-oriented OI traits along with only 'Alignment & Congruence' be considered as job resources (as in JD-R theory), as the effect on occupational stress is significant in negative direction?

4. Also, when I run this model for OI traits as a whole, the analysis revealed that Occupational Stress mediates the relationship between OI traits and digital government service quality (DGSQ). In other words, OI collectively influences o/stress and later on DGSQ. In other words, occupational stress explains the missing link between OI and DGSQ.

Hence, do you have any suggestions, as to how this finding can be incorporated to design future strategies in heightening the quality of digital services in Malaysia?

## List of Questions for Public Sector Practitioners

1. Based on the IPMA diagram, priority factors in terms of importance and performance of OI traits and occupational stress towards the digital government service quality are identified.
  - 1.1 **Quadrant 1 (Keep up the good work):** ‘Alignment & Congruence’ and ‘Heart’ have equally high performance and importance.
  - 1.2 **Quadrant 2 (Focus here):** Occupational Stress’ in Quadrant 4 is the lowest performing trait with highest importance, in comparison with other predecessors.
  - 1.3 **Quadrant 3 (Low priority):** ‘Appetite for Change & Knowledge Deployment’ and ‘Strategic Vision & Decision Making’ demonstrated similarly low performance and importance on service quality.
  - 1.4 **Quadrant 4 (Possibly overkill):** ‘Shared Fate’, ‘Leadership’, and ‘Performance Pressure’ are the traits with highest performance but least importance towards digital government service quality.

In your opinion, how can the findings in each quadrant be explained to improve the digital government service quality?

2. Do you have any thoughts of why we only see ‘Alignment & Congruence’ along with employee driven elements (Heart, Shared Fate and Performance Pressure) to have positive effects on occupational stress when they are highly emphasised by organisations?

Would you like to add anything about this finding?

3. With regard to occupational stress, we also observe that it actually mediates or explains the missing link of the influence of OI traits collectively on digital government service quality. Hence, how can we incorporate this finding to improve the digital government service quality?

## Nottingham University Business School Participant Consent Form

**Name of Study: ORGANISATIONAL INTELLIGENCE AND DIGITAL GOVERNMENT SERVICE  
QUALITY: THE MEDIATING ROLE OF OCCUPATIONAL STRESS AMONG THE  
SERVICE PROVIDERS**

**Name of Researcher(s): SUBASHINI RAMAKRISHNAN**

**Name of Participant:**

<b>By signing this form I confirm that</b> (please initial the appropriate boxes):	<b>Initials</b>
I have read and understood the Participant Information Sheet, or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	
I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.	
Taking part in this study involves an interview by the participant that will be recorded using audio/written notes and later be transcribed as text. The recording will be destroyed when the transcribing process is completed.	
Personal information collected about me that can identify me, such as my name or where I live, will not be shared beyond the study team.	
My words can be quoted in publications, reports, web pages and other research outputs.	
I give permission for the de-identified (anonymised) data that I provide to be used for future research and learning.	

### I agree to take part in the study

\_\_\_\_\_  
Name of Participant

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

For participants unable to sign their name, mark the box instead of signing

I have witnessed the accurate reading of the consent form with the potential participant and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Subashini Ramakrishnan

*Subashini R.*

\_\_\_\_\_  
Name of Witness

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Researcher's name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

2 copies: 1 for the participant, 1 for the project file