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INNOVATION AND DIGITAL TRANSFORMATION IN UAE PUBLIC SERVICES: REACTIVE TO PROACTIVE

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Abstract

In this era, technology is constantly changing the world; governments must deliver efficient, accurate, innovative, and proactive services. Several case studies confirmed the importance of proactive and intuitive public services over reactive services. Machine learning, AI, IoT, and blockchain are expected to increase this importance in the fourth industrial revolution. Quality of life and wellbeing measurements are also helping governments design and deliver services that help people live better. Proactive and intuitive services focus on delivering services to customers before they ask for it, using available data from both the public and private sectors. On the other hand, traditional reactive services are provided by opening the door and waiting for the customer to come, ask, request, fill forms, submit documents, pay, and then provide the service. The Reactive-Proactive service delivery framework can help design, develop, and deliver services that improve people's wellbeing. The framework will also help visualize the service delivery maturity model. Case studies analysis and in-depth interviews analysis using text analytics were used to clarify and validate the framework's components. The results show that proactive service design requires other components such as ICT infrastructure, data, human capabilities, leadership vision, and supported policies. The Reactive-Intuitive Service Delivery Framework can also be used to mentor government entities on how to transform reactive services into intuitive cognitive services.

1. Introduction

In a world where technology relevance is rising at a breakneck pace, it is critical to grasp the path forward for providing effective technology-driven digital services. Customer needs, stakeholder interests, and functionality all influence the digital service ecosystem. Yet there are no rules or procedures in place to facilitate the digital transformation of services. Scholars and researchers have addressed the digitization of public services from both a reactive and proactive service perspective; literature has also discussed why and how consumers adopt digital services (Hallikainen et al., 2017). Recent advancements in government innovation have underlined the importance of addressing areas such as developing the capacities of government personnel, utilizing accessible data, collaborating with stakeholders, and establishing policies and processes that facilitate the innovation journey. There is a research gap in determining the optimal technique to design digital services and the critical components necessary to establish a proactive service from a public sector perspective (Erlenheim et al., 2020).

While the public sector is widely regarded as the engine of the economy and a country's prosperity, one of the most contentious current debates is on the critical nature of the service sector's efficiency and its relevance to the country's growth (Elapatha & Jehan, 2020). The next generation of public sector practices is quite distinct from private sector innovation practices, with the advantage that public sector practices can be scaled, duplicated, and customized to other organizations. Whereas private sector innovation practices are highly customized to the nature of each organization's business. Furthermore, innovation in the public sector is not confined to economic objectives or efficiency but encompasses social and political objectives as well (Asmara & Rahayu, 2020).

Leadership is not the sole determinant of innovation in public services in general and the service sector in particular. A new paradigm in public management has demonstrated that innovation is generated through a new collaboration schema in the form of co-design and co-production among stakeholders; this level of interconnection is uncommon in the public sector (Asmara & Rahayu, 2020). Despite growing interest in proactive employee behaviors in domains such as career path and change management, little study has been conducted on the proactive approach in the service delivery domain (Rank et al., 2007).

The objective of this study is to discover the critical characteristics that characterize reactive-proactive services in the public sector. The purpose of this paper is to address the following questions: (i) "what are the primary components of a service delivery framework?" and (ii) "what are the primary enablers of proactive service delivery?" By addressing these research questions, the public sector is able to deliver the ideal customer experience and achieve operational effectiveness and efficiency. In this study, in-depth interviews with subject matter experts were conducted in order to ascertain the success factors associated with providing services. Additionally, the research is bolstered by two case studies from Singapore and the United Arab Emirates (UAE), which detail the evolution of service delivery in the public sector and introduce a new paradigm for the next generation of service delivery.

The paper is organized as follows: Section 2 discusses customer experience in public services, and how service inconsistency across many channels challenges customers. In addition, it examines the transformative path for public services, which encompasses new techniques including service innovation, business process reengineering, and adoption of new technologies. Section 3 elaborates the research methodology and proposal of reactive - proactive service delivery framework. Followed by Section 4

presents the preliminary findings and key points of suggestions on service delivery. The report also covers e-government maturity levels, capacity, and procedure, and offers a hypothetical UAE government service maturity level. Finally, Section 5 concludes with a summary and future research directions.

2. Literature Review

The government aims to produce public services that meet public expectations while also achieving "fairness and social equity". The concept of providing public services has evolved away from the previous model and toward a new developing paradigm (Asmara & Rahayu, 2020). It is self-evident that the public sector should prioritize effectiveness and efficiency; additionally, delivered services should be customer-centric which is tailored to constituents' wants and preferences. From the private sector's perspective, government agencies constitute an integrated eco-system for regulating and facilitating private business operations. Any country's success and sustainability are contingent on the quality of public services offered to residents and the private sector (Tomorri et al., 2020).

The innovation schema in public sector organizations is framed by Schumpeterian's thoughts in OECD reports with the fundamental definition of innovation as "a new way to accomplish public goals," which was later explained to include four categories: "new product, new processes, new organization, and new marketing or business models." Additionally, innovation can be described as the introduction of unique government services that benefit companies, knowledge management, and capacities (Asmara & Rahayu, 2020).

Business process re-engineering (BPR) is a technique for redesigning services and assuring efficient service delivery in the public sector. It entails (i) organizational restructuring, (ii) regulatory reform, and (iii) an appropriate performance management system. BPR is described as the complete rethinking and restructuring of business processes with the goal of achieving dramatic improvements in crucial, modern performance measures. BPR advocates for rethinking and dismantling current service delivery approaches in favour of simpler, smoother, and faster alternatives (Elapatha & Jehan, 2020).

On the other hand, the customer behaviour behind the service delivery is driven by three stages: decision to request the service, action to purchase and perform the service through the channels and the usage of the outcome of the service in the daily life events (Tao et al., 2022). Even though it appears as a simple process, yet many psychological factors that influence the customer action such as (i) customer culture: the shared values and traditions based on mutual experience among group of individuals, (ii) customer social class: shared habits based on the social pyramid, (iii) customer personality: shared experience and life style based on which could involve age, position or occupation, economic situations, daily lifestyle, (iv) customer psychological factors: such as motivations, knowledge, perception, believes and attitudes (Aly Shaban Abdelmoteleb et al., 2017).

Debate continues about the best strategies for managing public services, while government organizations are doing their best to deliver new services, new delivery schema (how services will be delivered to general public), new business processes, new marketing model (the best way to convince customer to adopt new services), new policies (procedures and programs), new service strategy, new systems and technologies to offer the services and new governance model. While a variety of definitions

of the term innovation have been suggested, this paper will shed light on creating innovation in concept, innovation in organization, in policy and in the governance model (Asmara & Rahayu, 2020).

Failing to innovate organization in general and services in particular, has a negative impact on nation capabilities, accordingly the economy will suffer which will stress the wellbeing and quality of life. Aiming to sustain and support the competitive position of organization, it is essential to incorporate innovation in both public and private sector (Aminova & Marchi, 2021).

Through the last two decades, there has been a continuous effort focused on increasing organizational strength, and the quality-of-service provision from the public sector. A good public service administration is always focused on ensuring the quality and legality of decisions taken, also it should protect and promote citizen engagement practices, ensure transparency and accountability by eliminating complex, unnecessary and long processes (Tomorri et al., 2020). In fact, in a world with extensive up-to-date information and the greater access to internet resources, customers in return are prompted to larger demand aiming for better quality of life and higher standard of public services. Both facts create a new phenomenon that impacts the service delivery in the public sector, increased awareness of the constituents regarding their rights and needs from the government and higher the expectation for the service delivery (Alahakoon & Jehan, 2020).

One of the most significant current discussions in legal and moral philosophy is the role of digital transformation in providing better public services; current research contends that this is driven by availability of newer technologies associated with Big Data that enable better and accurate decision-making processes. Indeed, digitization within the public sector is encouraged and loathed as it is always linked to pros (accurate information and fast analysis) and cons (customer privacy discussion) (Alahakoon & Jehan, 2020).

2.1. Service maturity ladders

It is becoming increasingly difficult to ignore the maturity ladders introduced by researchers and scholars, however each ladder is addressing the services from different perspective. The Business process maturity model (BPMM) is focusing on measuring and improving business process competence (Lee et al., 2007). Another interesting service maturity in the "capability of the function and uses the Capability Maturity Model/Capability Maturity Model Integration (CMM/CMMI) Development method". The model context is electronic based services offered from government to public (Saputra et al., 2020). Another maturity model was introduced from a business intelligence infrastructure perspective, where the business maturity model guides companies to get safe and operate effectively with less errors and less expenses through reporting and data analyses (Tavallaei et al., 2015). A very comparative model focused on the personalization aspect of the E-government was introduced, the adaptive E-government Maturity (AEM) model is theoretical maturity model that identifies key required practices required for e-government and related personalization strategies, the model is also considered as a roadmap for E-government transformation to an adaptive form (Zakaria, 2015). Another interesting maturity model around E-government adoption was introduced to discover the critical factors that can enable constituents to adopt E-government (Shareef et al., 2011).

Throughout the E-government service maturity model, the researcher defines the patterns of service development for government organizations aiming to enhance the service interaction, user adoptions considering the use of technology and increase the customer satisfaction. First stage is a static stage, simply a one way of communication where the user is able to read information and download forms. Second stage is the interaction stage where the two ways of communication are established between citizens and the government to answer queries or questions through mails or chat. Third stage is the transaction stage where it is more than just offering information and answering questions, and here the real transaction is done electronically without visiting the government premises. Fourth and fifth stages are vertical and horizontal integration where public services are connected across the country in both vertical and horizontal manners (Shareef et al., 2011).

The adaptive E-government maturity model is addressing the personalization aspect of the E-government based on sequential multistage methodology. The purpose of the model is to identify the required key practices that enable the e-government personalized services by being more customer centric. First stage is "presence" where the government is figuring out clearly what services should be personalized. The second stage is "semantic adoption" where it is the backbone of the chosen services. Third stage is "user modelling" where it is the process of building the mechanism including user preference and behaviours. The fourth stage is "procedure planning" where service designers are building scenarios based on life events. Last stage is "middleware layer" where all layers are assembled together and work smoothly to deliver the service (Zakaria, 2015).

Interestingly, the service-oriented business intelligence maturity model is targeting fixing problems related to information, integration deficiency, poor programming and increased focus on business intelligence. The model is started by the "initial" stage followed by "immature", "controlled", "managed" then "mature". The model is also mapped with three pillars which are people, process and technology (Tavallaei et al., 2015).

The Business Process Maturity Model (BPMM) has been designed to measure and provide support in how to improve business process competence. The concept of the BPMM has five levels. The "Initial" stage has no clear characteristics and most of activities are ad-hoc designed on the go. Second stage is "Managed" where there is no clear definition for processes however there is partial measurement, monitoring and controlling for unit's processes. Third is "Defined" where processes are clearly defined, monitored, controlled and measured with limited practices for process improvements through data. Fourth is "Quantitively Managed" where process performance is measured quantitively, and data is used partially for process improvements. Lastly "Optimizing" where monitoring and controlling processes are done proactively and data is used systematically for process improvements (Lee et al., 2007).

The service maturity levels in a recent study applied on the government of Indonesia are five, starting with "information" where services are provided in one-way information context. Second level is "interaction" where service still limited to information but in a two-way communication. Third is "transaction" where it goes beyond information to provide electronic service through information exchange services. Fourth is "collaboration" where services are enabled by integration between services across different organizations. Lastly "optimalisation" where services can adapt to changing needs within the organization or externally (Saputra et al., 2020).

The E-government maturity model introduced for the Indonesian government has different aspects of Sistem Pemerintahan Berbasis Elektronik (SPBE) implementation such as "internal governance Policy, internal services policy, institutions, strategy and planning, information and communication technology, government administration, and public services ". The model consists of five stages (i) "Stub" where there is no clear internal policies nor solid governance model, (ii) "Managed" where there is internal policies and basic management governance model for each organization, (iii) "Standardized" where internal policies has set the standard for governance process across the organization, and governance is on place and implemented, (iv) "Integrated and Measured" where internal policies and the governance model are fully implemented in addition to measuring the performance quantitively and in alignment with the governance processes, lastly (v) "Optimum" where the continuous evaluation and the quality management systems are the extra mile (Sukarsa et al., 2020).

As such, the models discussed above are not government service oriented nor yet concerned with the use, impact or use of e-government initiatives. The maturity model focus is on the providing process of e-government, including the way the information is implemented and the type of communication and the techniques used to improve the efficiency of online services provided by the government (Kawashita et al., 2020). However, these rapid changes in technology, human needs, and expectations are having a significant impact on the validity of the aforementioned models and their applicability. The Corona epidemic of 2020 was one of the most significant events of the decade, accelerating the desire for less human interaction and more efficient E-services.

While a variety of maturity models have been suggested focusing on providing guidelines for organizations on how to improve provided services in each sector, the suggested model within the paper will use a different approach and will try to see it from both sides. Outside-In where constituents receive the services from the government and measure against their needs and preference. On the other hand, Inside-Out where government leadership and service designers should maintain certain practices to be in place to ensure customer centricity and operation efficiency.

2.2. Proactive services

One observer has already drawn attention to the digitization paradox that nowadays wherever you surf a public service online website, you are likely to meet a virtual assistant that pop-up within the page asking for helping and supporting you within your journey inside the website, this could be by asking "how can I help you" or just introduce new service offered. The virtual assistant is not a real person, rather it is a chatbot supported by an artificial intelligence engine.

Public sector organizations introduced chatbots for public good, primarily to save money and increase public service effectiveness and efficiency (Makasi et al., 2020). One major theoretical issue that has dominated the field for many years concerns the strong relationship between effectiveness and efficiency in public services and enhancing the public service value in citizen's perception (Lee et al., 2007). Public value in general is a theory introduced to focus behind the theory is to promote excellence in public services (Hartley et al., 2019). Public values are the values created by the government through different actions including services, laws, policies and regulations, mentioned values are defined by citizens themselves and function of constituents' preference (Bryson et al., 2014). Public services value

described within the technology paradigm as the justification behind the related actions, this can be addressed in three concurrent questions: (i) what public value is being created, (ii) where does the legitimacy and (iii) support to create the public value come from, what operation capacity is required to deliver the public value (Makasi et al., 2020).

More recently, literature has emerged that offers contradictory findings about innovation, however most literature reveals that services revolution through innovation has a positive correlation in improving the reputation and the power of organizations, by improving its competitive advantage or achieving the state of operation efficiency accordingly (Aminova & Marchi, 2021). A study has established that managing service performance proactively was positively corelated with employee performance, organization commitment, processes and procedures complexity, and the leadership engagement (Rank et al., 2007).

It is becoming increasingly difficult to ignore the value of the data available on government entities and the importance of the data analytics to provide services in a different manner, organization nowadays can initiate the services proactively considering owning all the required information about the customer including: document expiry date, identification documents, and required payment in e-wallet. Such required information about customer future needs is gradually available. Proactive services can literally reduce service waiting time and sometimes eliminate the need of service channels and the queuing in service centres (Delana et al., 2021).

In the new global economy, e-government and providing online services has become a central issue for most of the government, public sector leadership across the world realized the positive impact of the e-government in both operation efficiency and administrative progresses, leading governments around the world have started to explore different ways to utilize innovation in digital world beyond the traditional efficiency paradigm, emerging service strategy are more focusing on how to deliver services proactively and contribute on solving people problems. The aim of modern public service strategies is to focus on shifting the service delivery model from the "Pull" where customer has to ask for the service, accordingly the public sector is opening channels to respond to customers and fulfil his needs to "Push" whereby government proactively delivers intuitive and just in time services to citizens aiming to fulfil their needs, preferences, through seamless and personalized services. Traditionally, proactive approach will evolve customer centricity, data-driven experience (Forouzandeh et al., 2020; Forouzandeh et al., 2022), service personalization [36], and employee's empowerment (Shin et al., 2017).

This proactive service delivery concept has recently been challenged by different scholars and studies indicating that citizens prefer proactive service delivery from organizations rather than initiating services themselves (Shin et al., 2017). Constituents that use the data-driven services provided by technology companies have become familiar with the high standards of services, services which are designed for personalization, and instant gratification. Proactivity is an equivalent tactic for constituents-centric services and can shape the roadmap towards further inclusive public services, empowering and supporting the less tech-savvy to get the advantage of the different advanced services offered by government agencies. Additionally, proactivity is considered the steppingstone for an inclusive, just, and equal society, since it has a positive impact on improving citizens' equal access to public services (Bharosa et al., 2021). The constituents are expecting proactive services from constitutions, they are

expecting services to be initiated by the government, as an alternative of requesting the services. This embarks the transformation from one-stop shop to a no-stop shop, where the constituents used to receive the services without filling any form or asking for it (Scholta et al., 2019). So far, providing proactive services in the public sector counts on the role of three essential dimensions: constituents, governments, enablers. When it comes to providing services to customers (G2C), accelerating the seamless governance is a factor of government programs, re-engineering policy paradigms, and developing innovative strategies. Nevertheless, emerging technology is playing a big role in such transformation with great emphasis on machine learning and artificial intelligence. Accordingly, the paradigm of the next generation of services offered by the public sector requires revolutionary approaches focused on constituents' life-events (Plantera, 2017).

The goal is to develop toward invisible event services, in which customers are served as a result of life events and experiences. For instance, when a child is born or begins school, or when an individual becomes unemployed, changes jobs, purchases a home, or is involved in an accident, technology is capable of connecting dozens of services provided by various institutions and providing a comprehensive solution to the citizen via a single event and single contact. Additionally, the state is not required to wait for the consumer to request assistance, grants, or advice. The state can offer exceptional chances to residents proactively, given all information is available and citizens have consented to its use for such objectives (Plantera, 2017).

2.3. UAE case study

UAE started developing the e-services since 2003, while the proactive services born officially on 2017 with a service bundle designed for UAE citizens who are having new baby, where the government is triggered by the birth notification received from hospitals, to initiate the service to parents by sending SMS to congratulate the parents and acknowledge starting the service by request simple inputs such as "baby name, confirmation on the payment", accordingly and seamlessly the government is processing the required documents to surprise the customer in few days with all the required official documents to start life. Three days are the service level agreements to deliver birth certificate, family book, travel passport, health insurance, and emirates identity card. The customer experience before, it required seven different visits to 5 different entities, which takes two weeks minimum to receive all the needed documents (Mabrouk Ma Yak, 2022).

By end of 2020, the UAE prime minister has launched the UAE proactive service strategy which takes the proactive service to a new level, where the service is extending beyond delivering the five documents to plan ahead for the baby, starting from booking a school seat within six years of his birth, recommending nurses and schools nearby their address and provide support services based on their life style and needs (UAE the Cabinet, 2023).

The proactive services are defined based on five concepts: (i) predict the services customers will ask for, (ii) provide the service before the customer ask for it, (iii) personalize the services to meet customer needs and preference, (iv) provide services in accurate time with easy steps, and finally (v) providing services without asking for information or documents and considering the available data within the government (UAE Ministry of Community Development, 2022).

The UAE government has also introduced another guideline to define the digitization principles, which includes (i) provide services in three steps, (ii) asking for information and documents once, (iii) providing services through a unified platform, (iv) promote the UAE digital enablers such as digital identity, digital signature, citizen vaults and the seamless integration between government entities (The United Arab Emirates' Government portal, 2022).

Following the success of the proactive services. the UAE launched "the first-ever Ministry of Possibilities" (MOP). It is described as such MOP will run without a minister, will handle significant national issues helping to accelerate bringing the future forward. The focus on the ministry to define and develop the next generation of services including the proactive services, behavioural incentives and skill discovery (Gulf News, 2019).

2.4. Singapore case study

During the sensitive shifting moments of life, for example getting married, establishing a company, or fostering elderly, these are such critical moments. The government is trying to accommodate its citizens in order to reduce the friction between both parties. Digitalization is going beyond automation and moving services to be online, it is also about unifying multiple touchpoints and offering it in a single experience. By 2018, GOVTECH Singapore introduced MOL mobile application to support the heart of the government services. The MOL application has been developed as a result of citizen engagements sessions where the government understands the challenges facing customers and puts hands on customer needs and preferences (GovTech Singapore, 2022).
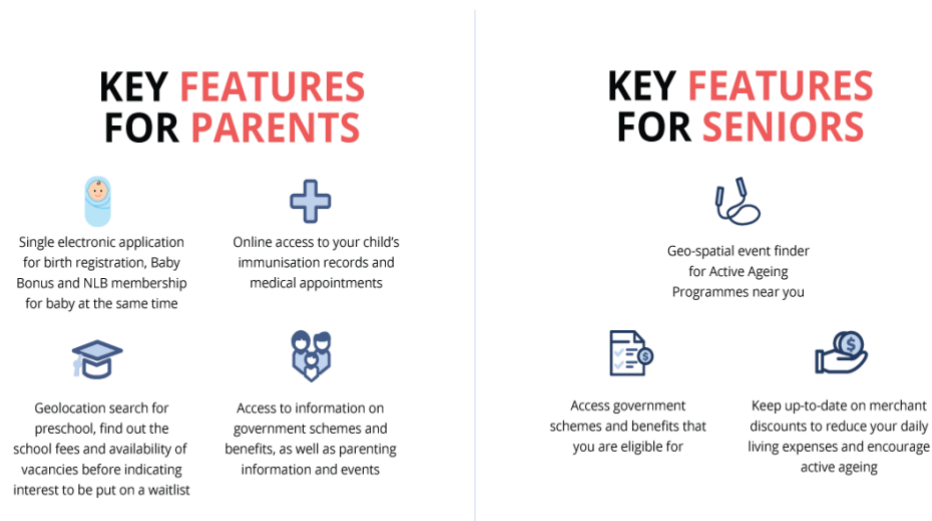

Figure 1. Key features of MOL application (GovTech Singapore, 2022)

MOL (families) application is a great step toward delivering connected, integrated, and comprehensive services to citizens on a single experience. The application is offering five key features, as shown in Figure 1 which includes (GovTech Singapore, 2022):

i. Registration of a birth: The application allows new parents to register their infant with the government without having to provide any physical paperwork or visit any government center.

ii. Application for Baby Bonus: The government offers monetary gifts under the "Baby Bonus" plan. After successfully registering a child via the MOL (Families) app, the Baby Bonus application is triggered automatically.

iii. Child's vaccination and medical records: MOL program helps parents keep track of documents and push reminders before vaccine day.

iv. School registration: It helps parents identify nearby preschools, searchable by location, with all the needed information about the school, including costs, required papers and how to obtain a space.

v. Parenting advice: the application provides a multitude of resources on parenting.

As a result of this tremendous revolution in service delivery, in general, eight critical success elements for creating value for residents (GovTech Singapore, 2023):

i. Build capacity: investing in people is the main ingredient for success.

ii. Think outside the box: promoting the revolutionary way of thinking that led to different approaches to solving problems.

iii. Leverage small data for big impact: utilizing available small data to add value and provide accurate and personalized data.

iv. Reduce redundancy: the shift from 2,400 websites representing different government entities to a single platform and unified customer experience.

v. Develop microservices, where software is like Lego bricks, consisting of modular pieces that individually perform an independent purpose and can connect together to give larger functions.

vi. Provide tailored transition services through a single platform and client experience rather than various applications and platforms.

vii. Provide a paradigm shift in service delivery provision from "Pull" to "Push", approaching citizens proactively instead of waiting for citizens to approach the government.

viii. Encourage co-creation: the government cannot handle all citizen issues alone; collaboration with the private sector, SMEs, and startups is essential.

3. Method

The research methodology discusses the approach and the strategy of this research to triangulate different components of this study to reach a clear conclusion. The research design involved the qualitative part with thought leaders from UAE government to articulate identifying the service maturity components.

3.1. Data collection

The data collection has been conducted through five in-depth interviews focusing on the service delivery environment inside public sector allowing them to attentively answer questions related to "what are the main components on service delivery framework?" and "what are the main enablers of providing

proactive service delivery?". Table 1 lists the 5 respondents who are the directors and advisors in 5 service delivery centers in UAE. Then, the researchers transcribed the answers, and transformed thought leaders' thoughts into specific components that can represent the service delivery framework later and through the second phase the researcher conducted another five in-depth interviews with service pioneers in UAE to validate the results and to unleash the main enablers for providing proactive services. The researchers also structured the interview to cover three types of questions: (i) engagement questions, to explain the scope of the study and update the interviewees with the history of the case studies, (ii) exploration questions, which deep dive into the interviewees' experience and pull the thoughts related to service delivery based on real experience, and (iii) exit question, which is used to explore any unclear points and close the discussion. It was also important to engage with thought leaders from different service sectors and to maintain different nationalities within the interviews (Day, 2007).

Table 1. Interviewees' profiles

INTERVIEW	RESPONDENT AND AFFILIATIONS	YEARS OF EXPERIENCE
1	Director of Service delivery centers support – Identity and citizenship authority	19
2	Director of smart Services– Ministry of cabinet affairs	10
3	Advisor– Government consultancy	21
4	expert– Ministry of interior	20
5	Advisor– Dubai Health Authority – ministry of foreign affairs	20

During the pandemic time, and to comply with the safety measurements, it was suggested to run all interviews through online meetings. Microsoft teams was used for the virtual interviews. The selected research samples were five in-depth interviews in each phase including thought leaders from ministry of foreign affairs, identity and citizenship authority, ministry of interior, ministry of economy, Abu Dhabi municipality and Dubai health authority. Each interview took from 45 to 60 minutes and it was pre-planned at an interviewee convenient time.

3.2. Data analysis

As noted previously, the respondents' interview materials were transcribed keyword by keyword. Following that, the "bag" of words was analyzed using text analytics. The algorithm calculated the frequency of each keyword and evaluated the phrases on the left and right sides of the sentences. This method resulted in the creation of a term link (Nasiri et al., 2022) composed of frequently occurring terms. This is to summarize the key points of the interview in order to aid the researcher in developing the recommended conceptual framework.
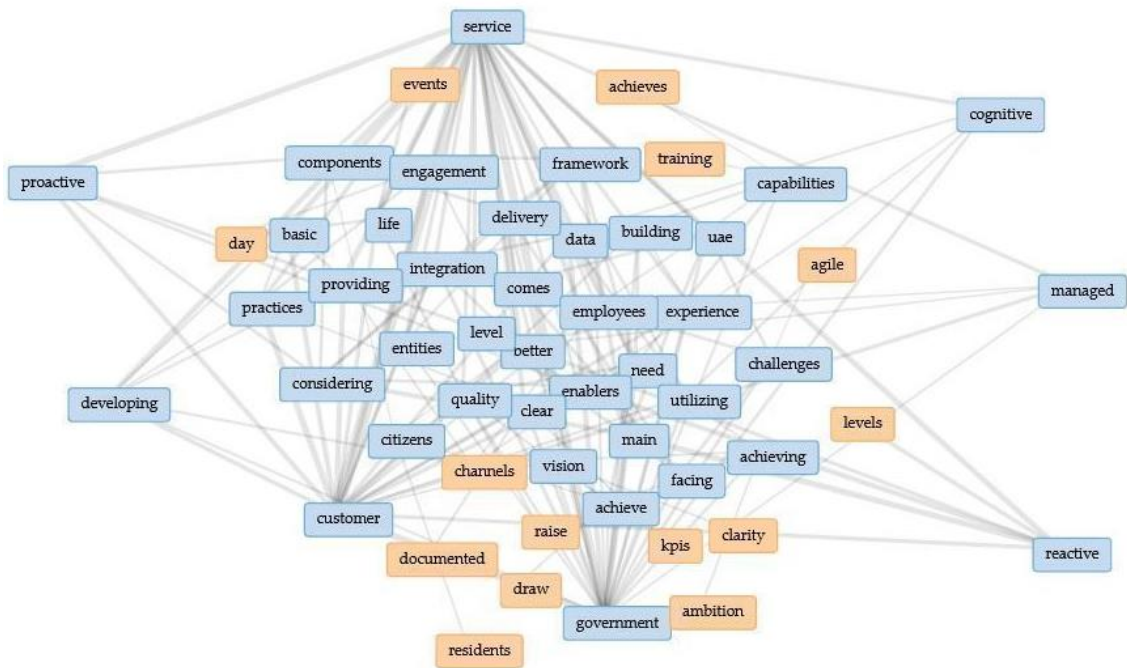
Figure 2. Keyword Term Link

Figure 2 depicts frequently occurring keywords from five transcribed interviews, including 'service' (93 counts), 'customer' (63 counts), 'government' (34 counts),'reactive' (15 counts), 'delivery' (10 counts), 'proactive' (10 counts), 'developing' (6 counts), 'cognitive' (5 counts),'managed' (5 counts), and 'channels' (3 counts). These counts and connections substantiate the evidence indicated in the interviews and contribute to the findings being presented as a conceptual framework for service delivery.

4.   Findings and Discussion

As stated previously, the study aims to articulate the primary components of the framework and to debate and unleash the primary enablers of proactive service delivery.
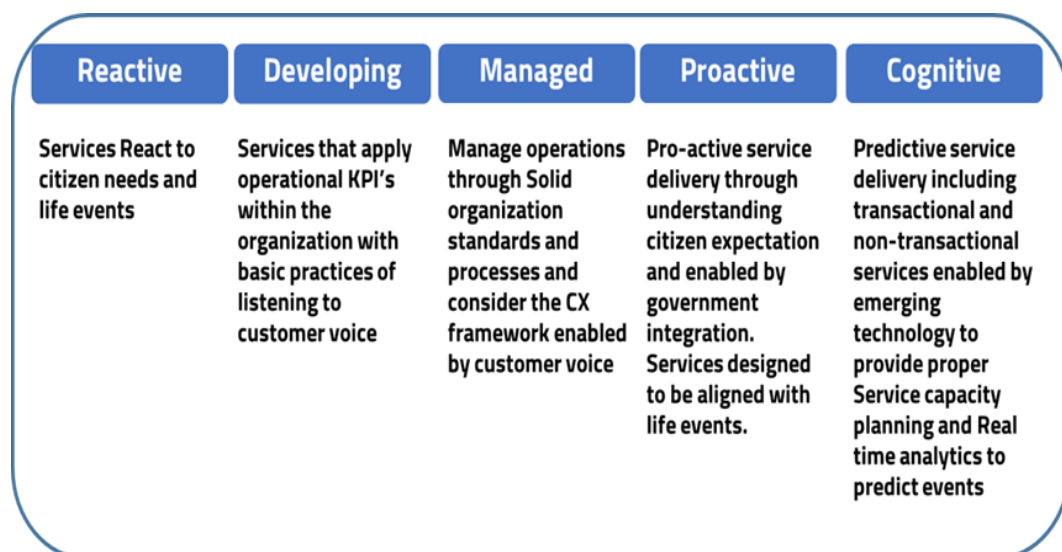

Figure 3. The reactive – proactive service delivery framework

The researchers were able to identify a conceptual service maturity framework with five service levels that may be used to illustrate the ladder of service delivery in the public sector as a result of the findings. In Figure 3, the first level is "Reactive", which is considered the basic stage where government is figuring out the road to satisfy citizens, simply put, government are reacting to citizen needs and life events, second stage is "Developing", where designed services are designed to fulfill operational KPI's within the organization with basic practices of listening to customer voice, third stage is "Managed" where government is managing operations through solid organization standards and processes, the provided services are following specific customer experience framework enabled by customer voice, the fourth stage is "Proactive" where service delivery are designed through model of understanding citizen expectation and enabled by government integration, moreover, services are designed to be strategically aligned with citizen's life events, lastly is "Cognitive" stage where organizations adopted predictive service delivery model including transactional and non- transactional services enabled by emerging technology to provide proper service capacity planning and real time analytics to predict life events and reach customer to provide connected and comprehensive experience.

The researchers were also able to define additional practices associated with each step during the second phase of interviews, as illustrated in Figure 4. Reactive services are more closely associated with providing services reactively across various service channels while instilling basic customer care habits in frontline staff. "Developing services" is evolving to include transparent service delivery processes, standard operating procedures (SOP), and strong performance management techniques, as well as strategies for listening to client demands and preferences (customer voice). By bringing connectivity and integration across many linked entities, customer experience management strategies such as customer journey mapping, and customer interaction activities, "managed services" is maturing service delivery. "Proactive services" is the stage at which co-creation and co-production concepts are implemented, including transitioning from various touchpoints to a unified channel (Omni channel) and proactively approaching clients depending on key life events. Finally, the advanced level is "Cognitive services," in which services are supported by developing technologies such as big data, machine learning, and artificial intelligence, while also focusing on efficiency and impact to improve people's quality of life and welfare.

Such a model of service delivery can help public sector organizations to assess their services across the stages and develop a roadmap in how to reach the maturity level with clear milestones and performance indicators.
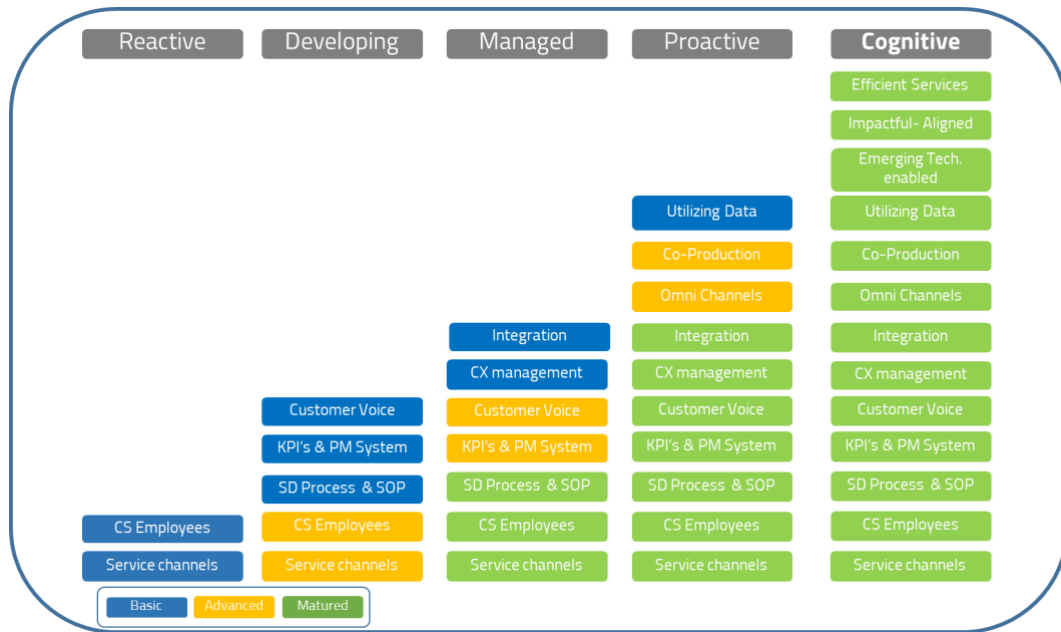
Figure 4. Service Delivery Maturity level - Characteristics

5. Conclusion

This paper discussed the term "proactive services" and the reasons for its widespread use. The suggested conceptual framework complements the importance of digitalization in service delivery; moving public services from reactive to proactive customer service is a radical transition that raises questions about the government's future role. This research can serve as a foundation for future studies concentrating on public services and the seamless experience provided to citizens and residents, with an emphasis on addressing customers proactively and leveraging data already accessible to the government.

Given that the conceptual framework is based on qualitative research, the quantified portion of the study can assist in validating the model for the public sector and quantifying the correlation between customer satisfaction and each maturity level, shedding light on the true impact of shifting from reactive to proactive services. The findings from this study indicates the following areas for future research and raises other issues:

i. The role the government will play in the future, given digitization and the shift away from traditional service channels (service centers, websites, contact centers, and mobile apps) toward a unified platform that provides services seamlessly and proactively.

ii. Quantifying the true impact of proactive services on people's lives, including happiness, quality of life, wellbeing, and environment.

iii. Another critical point to consider is the governance framework for such transformations.

Finally, a number of critical constraints must be considered. The first is a lack of quantified research to validate the model; the second is the role of the private sector in accelerating such transformations in service delivery; and finally, researching the "negative impact" of digitization in light of the large segment of government employees in various countries who will be required to transition from frontline to different roles.

References

Alahakoon, M. U. I., & Jehan, S. N. (2020). Efficiency of Public Service Delivery—A Post-ICT Deployment Analysis. *Economies, 8*(4), 97. https://doi.org/10.3390/economies8040097

Aly Shaban Abdelmoteleb, A., Kamarudin, S., & N. E. Nohuddin, P. (2017). Data driven customer experience and the roadmap to deliver happiness. *Marketing and Branding Research, 4*(3), 236-248. https://doi.org/10.33844/mbr.2017.60452

Aminova, M., & Marchi, E. (2021). The Role of Innovation on Start-Up Failure vs. its Success. *International Journal of Business Ethics and Governance*, 41-72. https://doi.org/10.51325/ijbeg.v4i1.60

Asmara, A. Y., & Rahayu, A. Y. S. (2020). Innovation in Delivering Public Health Service: Practice In Banyuwangi Regency - Indonesia. *GATR Global Journal of Business Social Sciences Review, 8*(1), 12-21. https://doi.org/10.35609/gjbssr.2020.8.1(2)

Bharosa, N., Oude Luttighuis, B., Spoelstra, F., van der Voort, H., & Janssen, M. (2021). Inclusion through proactive public services: findings from the Netherlands. DG.O2021: *The 22nd Annual International Conference on Digital Government Research*. https://doi.org/10.1145/3463677.3463707

Bryson, J. M., Crosby, B. C., & Bloomberg, L. (2014). Public Value Governance: Moving Beyond Traditional Public Administration and the New Public Management. *Public Administration Review, 74*(4), 445-456. https://doi.org/10.1111/puar.12238

Day, D. V. (2007). *Developing Leadership Talent: A guide to succession planning and leadership Development.* SHRM Foundation. https://www.shrm.org/hr-today/trends-and-forecasting/special-reports-and-expert-views/Documents/Developing-Leadership-Talent.pdf

Delana, K., Savva, N., & Tezcan, T. (2021). Proactive Customer Service: Operational Benefits and Economic Frictions. *Manufacturing & Service Operations Management, 23*(1), 70-87. https://doi.org/10.1287/msom.2019.0811

Elapatha, V. W., & Jehan, S. N. (2020). An Analysis of the Implementation of Business Process Re-engineering in Public Services. *Journal of Open Innovation: Technology, Market, and Complexity, 6*(4), 114. https://doi.org/10.3390/joitmc6040114

Erlenheim, R., Draheim, D., & Taveter, K. (2020). Identifying design principles for proactive services through systematically understanding the reactivity-proactivity spectrum. *Proceedings of the 13th International Conference on Theory and Practice of Electronic Governance*. https://doi.org/10.1145/3428502.3428572

Forouzandeh, S., Aghdam, A. R., Forouzandeh, S., & Xu, S. (2020). Addressing the Cold-Start Problem Using Data Mining Techniques and Improving Recommender Systems by Cuckoo Algorithm: A Case Study of Facebook. *Computing in Science & Engineering, 22*(4), 62-73. https://doi.org/10.1109/mcse.2018.2875321

Forouzandeh, S., Rostami, M., & Berahmand, K. (2022). A Hybrid Method for Recommendation Systems based on Tourism with an Evolutionary Algorithm and Topsis Model. *Fuzzy Information and Engineering, 14*(1), 26-50. https://doi.org/10.1080/16168658.2021.2019430

GovTech Singapore. (2022, November 6). *Moments of Life - A new approach to seamless government digital services*, *2019*. https://www.tech.gov.sg/media/technews/moments-of-life-a-new-approach-to-seamless-government-digital-services.

GovTech Singapore. (2023, October 8). *8 insights from Singapore's Government Chief Digital Technology Officer*. https://www.tech.gov.sg/media/technews/8-insights-from-government-chief-digital-technology-officer

Gulf News. (2019, April 23). *Explainer: What the Ministry of Possibilities, the world's first, will do in the UAE*. https://gulfnews.com/special-reports/explainer-what-the-ministry-of-possibilities-the-worlds-first-will-do-in-the-uae-1.1556021988393

Hallikainen, H., Paesbrugghe, B., Laukkanen, T., Rangarajan, D., & Gabrielsson, M. (2017). How Individual Technology Propensities and Organizational Culture Influence B2B Customers

Behavioral Intention to Use Digital Services at Work? *Proceedings of the 50th Hawaii International Conference on System Sciences* (2017). https://doi.org/10.24251/hicss.2017.552

Hartley, J., Parker, S., & Beashel, J. (2019). Leading and recognizing public value. *Public Administration, 97*(2), 264-278. https://doi.org/10.1111/padm.12563

Kawashita, I. M. S., Baptista, A. A., & Soares, D. (2020). E-government maturity models: more of the same? *2020 Seventh International Conference on eDemocracy & eGovernment* (ICEDEG). https://doi.org/10.1109/icedeg48599.2020.9096697

Lee, J., Lee, D., & Kang, S. (2007). An Overview of the Business Process Maturity Model (BPMM). *Lecture Notes in Computer Science*, 384-395. https://doi.org/10.1007/978-3-540-72909-9_42

Mabrouk Ma Yak. (2022). *The United Arab Emirates' Government portal*. https://u.ae/en/information-and-services/social-affairs/having-a-baby/mabrouk-ma-yak

Makasi, T., Nili, A., Desouza, K., & Tate, M. (2020). Chatbot-mediated public service delivery. *First Monday*. https://doi.org/10.5210/fm.v25i12.10598

Nasiri, E., Berahmand, K., Samei, Z., & Li, Y. (2022). Impact of Centrality Measures on the Common Neighbors in Link Prediction for Multiplex Networks. *Big Data, 10*(2), 138-150. https://doi.org/10.1089/big.2021.0254

Plantera, F. (2017). *Proactive governance enhances service delivery in Estonia*. https://e-estonia.com/proactive-services-estonia/

Rank, J., Carsten, J. M., Unger, J. M., & Spector, P. E. (2007). Proactive customer service performance: Relationships with individual, task, and leadership variables. *Human Performance*, *20*(4), 363-390.

Saputra, M. R. Y., Winarno, W. W., Henderi, H., & Shaddiq, S. (2020). Evaluation of Maturity Level of the Electronic based Government System in the Department of Industry and Commerce of Banjar Regency. *Journal of Robotics and Control (JRC), 1*(5). https://doi.org/10.18196/jrc.1532

Scholta, H., Mertens, W., Kowalkiewicz, M., & Becker, J. (2019). From one-stop shop to no-stop shop: An e-government stage model. *Government Information Quarterly, 36*(1), 11-26. https://doi.org/10.1016/j.giq.2018.11.010

Shareef, M. A., Kumar, V., Kumar, U., & Dwivedi, Y. K. (2011). e-Government Adoption Model (GAM): Differing service maturity levels. *Government Information Quarterly, 28*(1), 17-35. https://doi.org/10.1016/j.giq.2010.05.006

Shin, H., Ellinger, A. E., Mothersbaugh, D. L., & Reynolds, K. E. (2017). Employing proactive interaction for service failure prevention to improve customer service experiences. *Journal of Service Theory and Practice, 27*(1), 164-186. https://doi.org/10.1108/jstp-07-2015-0161

Sukarsa, I. M., Paramartha, I. B. A., Cahyawan, A. A. K. A., Wibawa, K. S., Yasa, P. G. A. S., Wulanyani, N. M. S., & Wisswani, N. W. (2020). Evaluation of E-Government Maturity Models in Sub-District Public Services in Indonesia Using the SPBE Framework. *Jurnal RESTI (Rekayasa Sistem Dan Teknologi Informasi), 4*(2), 243 - 253. https://doi.org/10.29207/resti.v4i2.1825

Tao, H., Sun, X., Liu, X., Tian, J., & Zhang, D. (2022). The Impact of Consumer Purchase Behavior Changes on the Business Model Design of Consumer Services Companies Over the Course of COVID-19. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.818845

Tavallaei, R., Shokohyar, S., Moosavi, S. M., & Sarfi, Z. (2015). Assessing the Evaluation Models of Business Intelligence Maturity and Presenting an Optimized Model. *International Journal of Management, Accounting & Economics*, *2*(9).

The United Arab Emirates' Government portal. (2022, November 6). *The UAE Digital Government Strategy 2025*. https://u.ae/en/about-the-uae/digital-uae/uae-national-digital-government-strategy

Tomorri, I., Keco, R., Mehmeti, G., & Domi, S. (2020). The performance assessment of public sector in Albania. *Administratie si Management Public, 34*, 170-180. https://doi.org/10.24818/amp/2020.34-10

UAE Ministry of Community Development. (2022, November 6). *Proactive services guidelines*. https://www.mocd.gov.ae/en/services/proactive-services.aspx

UAE the Cabinet. (2023, October 8). *Mohammed bin Rashid launches 'Ministry of Possibilities' to develop radical solutions for government's key challenges*.

https://uaecabinet.ae/en/details/news/mohammed-bin-rashid-launches-039ministry-of-possibilities039-to-develop-radical-solutions-for-government039s-key-challenges

Zakaria, M. R. (2015). Personalized E-government System: Towards an Adaptive Maturity Model. *International Journal of Business Research and Development, 3*(4). https://doi.org/10.24102/ijbrd.v3i4.572