Digital Interactions Strategy: A Public Sector Case

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Abstract— **The public sector's role as mandatory service provider is to produce effective services for users, and to make compliance uncomplicated and straightforward. However, at present, public sector services appear to not meet these user expectations. The purpose of this research is to explore ways to enhance digital adoption in the public sector by further understanding who these users are, when and why they seek assistance, and the various potential outcomes post-assistance. Evidence to support this research will be provided via a case study from the Australian Taxation Office. This research project will be presented in three sections. Firstly, the researchers describe a conceptual model they have created, which places the user at the centre of the research and policy direction. Secondly, results and some critical findings will be presented, of a pilot study which was conducted to test the model on a small scale. Thirdly, the researchers will outline planned extended research which proposes to validate the pilot findings and explore the service users in greater detail. The extended research utilises additional demographic data to better understand the greater system dynamics. This research is ongoing and forms part of a PhD dissertation.**

Keywords- Mandatory Systems; Digital Service; Digital Ecosystems.

I. INTRODUCTION

Increasing digital service adoption and the provision of a better digital client experience is vital to any successful government digital service platform. To achieve this success, research needs to identify and understand the users, including understanding why users seek assistance, and leverage points to maximise the users' capacity to complete their interaction. A recent study conducted by the Australian Digital Transformation Office [1] suggests that there is evidence that further research is required to address how to maximise digital service adoption. Improved understanding of issues users may have with specific public sector digital services has become increasingly important in Australia, with changes to service provision from in-person/call centre to digital. This research seeks to address knowledge gaps regarding who the users are, why they need assistance and where self-service assistance can be provided. This research

will be based on a case study conducted by the Australian Taxation Office (ATO). Through consultation with the ATO staff and examining company and academic literature, a clear gap was identified between what was known about mandatory digital service use and the users required to use them. Currently, standard methods for evaluating government services include interviewing or surveying users about services provided. This often results in biased results, as users often display expected behaviours [2]-[4]. Accordingly, research thus far has ignored a multitude of factors that impact adoption, and failed to identify barriers to adoption within a mandatory environment, and how different experiences with digital services can impact long-term adoption and when and why users seek assistance.

The creation of the Digital Continuity Policy 2020 mandated digital first platforms for all public sector services [5], causing significant challenges to service providers and users. For the purposes of this research, mandatory users are defined as citizens who meet certain characteristics, which including earning an income in Australia, and submit an annual income tax return to the ATO. Research into digital adoption does not engage with the concept of mandatory services and the impacts of digital first policies on users required to engage with digital services to comply with legislative requirements [6]. To address these concerns, analysis techniques should be holistic and adaptive, in order to incorporate an understanding of how a variety of factors can prevent or encourage users to go digital. This research utilises a holistic approach to analyse factors impacting users through the application of Systems Thinking and the testing of a conceptual model for analysing stakeholders/users in a multidimensional manner.

This paper is divided into six sections. Section one contains the introduction, section two presents the literature reviewed, section three discusses the research significance, section four outlines the research methods undertaken, section five highlights the results to date, and section six offers some conclusions.

II. LITERATURE REVIEW

Citizens expect digital services to be useful, accessible, easy to use and functional [7]. The goal of eGovernment is to create additional public value, by increasing stakeholder inclusiveness and encourage equal access to services [8].

The purpose of utilising e-government is to provide transparency and cooperation, improve government process, and provide digital services [9], all of which require continuous monitoring and assessment [8]. Furthermore, more needs to be done to understand the structural inequalities that affect the use of digital services, to prevent the issues becoming more intense and ingrained [10]. There is also a concern that social inequalities may be perpetuated online, given that those who are already in more privileged positions are more likely to use the medium [11]. These important factors highlight the value of researching barriers which prevent individuals from accessing government services.

The most common definition of adoption refers to continuous use of a digital service or innovation [12]. For digital services to be sustainable, they should be appealing and useful [13]. Shareef et al found in their research that perceived usefulness, perceived ease of use, perceived security and perceived reliability positively impact an individual's intention to adopt digital services [14]. Hargitti argued that not all online activities are equally important to enhancing one's human, financial and social capital [15]. This research determined that there is a strong relationship between level of education and type of digital services used [15]. Access to technology no longer determines inequalities alone – exposure to experiences which increase the digital participation and literacy are vital [15].

Research highlights four kinds of barriers to digital access: (1) lack of elementary digital experience due to lack of interest, (2) no computer access, (3) lack of digital skills, and (4) lack of significant usage opportunities [16]. Further barriers identified within the literature include lack of internet access, lack of awareness, language, user friendly websites, lack of trust, and security fears [9]. Researchers still need to understand the digital divide within the social, psychological, cultural and non-technological access context [17]. The challenge going forward is to determine the resources and functions that can be developed and provided to support positive user behaviour [7]. eGovernment aims to provide information and public services to citizens and encourages citizens to participate in different platforms [7].

Existing research does not focus on the multitude of factors impacting users' capacity to adopt and participate in a mandatory digital ecosystem, and there is little discussion around how digital adoption in mandatory spaces is different from adoption in other contexts. A thorough review of the literature identified the factors within a user's environment which have a significant impact on a user's capacity or willingness to adopt digital services within a mandatory space. For this research project, numerous different ecosystem styles were analysed, including digital, business, technology and innovation ecosystems.

Through the creation of a testable conceptual model, it is proposed that through the use of client-centric research, policy can better understand and support different stakeholders/users.
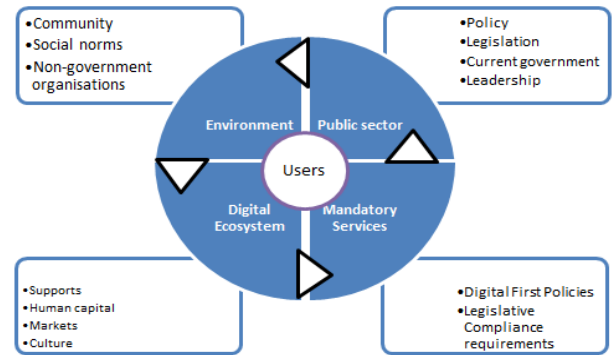

Figure 1 Conceptual Model with the User at the Centre

This conceptual model was created through the application of numerous stakeholder analysis techniques, combined with an analysis of the environment (based on Systems Thinking analysis) and digital ecosystems literature. The proposed conceptual model is highlighted in Figure 1. The four elements which capture the system are the Environment (including interactions with other people), Digital Ecosystem (including how digital products are accessed), Mandatory Services (including how they are different to voluntary services), and Public Sector (including the elements that make the services mandatory). Along with results of further research, this will be used to build an in-depth model.

III. SIGNIFICANCE AND RESEARCH GAP

This research will extend current understanding about the variety of factors impacting mandatory digital service adoption, bridging a gap in knowledge. The conceptual model in Figure 1 tests how policy can put the user at the centre, and help develop a better understanding of the user. Understanding digital adoption in the mandatory space should include how, why and when users adopt digital services, and in contrast when, how and why they do not, and in the latter case how they fulfil their mandatory compliance obligations. This research is based on understanding the outcomes of those users who actively seek assistance when using digital services, mapping the links between non-digital and digital issues, while also measuring outcomes. The application of a Systems Thinking approach will be applied to provide a more transparent view of the system, to understand the process holistically, per individual components and key interactions within the system. Therefore, the overarching aim of this research is to understand areas which may require intervention or can be leveraged to assist citizens adopt public sector mandatory digital services. This research proposes the model in Figure 1 to be tested through the collection and analysis of supporting data.

Previous research has applied a client-centric view to researching digital adoption; however, based only on voluntary digital services or those provided by the private

sector [18]-[22]. Prior research has identified that there are a number of socioeconomic, cultural and intrinsic values that influence whether or not an individual will accept digital services [23]-[26]. This has been, to a certain degree, ineffectively applied to public sector research on digital adoption [1]. When mandatory digital services *have* been researched, the outcomes commonly revolve around acceptance of e-government services; results are based on survey responses specifically related to trust and innovation factors [27]-[31]. Previous research does not appear to have addressed the issues around adoption in a mandatory space, why users do and do not adopt these services, and how they comply with legislative obligations when they do not utilise digital services. Research has not included in-depth exploration about why users seek assistance when utilising digital services from the supplying entity and the outcomes post seeking assistance. This is critical for successfully adopting and sustaining commitment in mandatory digital systems. Previous models too, fail to explore the issues and environments associated with mandatory digital service adoption. The application of the proposed model helps fill some of these gaps and provide greater clarity on these potential blockers.

IV. APPROACH

The research approach used in this research has been exploratory in nature, allowing for ongoing developments as the findings developed. The researchers initially had a liberal set of goals, with the intention of allowing the data collected to further refine the specific questions, direction and analyses. The data collection was implemented in two phases. First, a pilot study was conducted to determine the validity of the proposed model for stakeholder/user inclusiveness. The second phase involved the data collection for the extended research Only the pilot results are included in this paper, with plans in place to examine the second phase with different analysis techniques.

A. Data

Two qualitative datasets were collected during the pilot and extended research period. The pilot study was conducted over a 3-week period (July 2017) to validate the conceptual model. This was conducted by 2 researchers, located in an ATO shopfront environment (in-person assistance) in South Australia; 234 cases were collected. The second and more extensive dataset was collected by 11 ATO officers over 4 weeks (July 2018). Data was collected from numerous ATO call centres across Australia, with 3990 valid cases collected. From the 3990 cases collected, additional quantitative data was obtained. This data includes three years' worth of results for callers' including their income, income type, occupation and how they lodged their tax return. This data was joined to the qualitative data to provide a richer picture of the callers, specifically identifying why they sought assistance and how that

impacted their lodgement. All data was anonymised to ensure confidentiality and anonymity of participant data.

B. Methods

Two qualitative methodologies were applied to explore the data – firstly, Gioia's method for qualitative rigour and secondly, a Systems Thinking Approach. This enabled the researches to find structure in unstructured qualitative forms, as it is a systematic approach. Firstly, the Gioia method [32] [33] requires the researcher to step back, and then categorise the accounts into three different phases (First, Second and Third order). The first order, 'Concepts', is the 'voice of the user' (also known as 'voice of the customer'). The second order, 'concerns and statements', identifies specific sentences from participants which are then grouped together to discover the themes and patterns in events and accounts. These create Themes that are more generalised underlying explanatory dimensions, to test consistency and patterns [32] [33]. Finally, the third order 'aggregate dimensions', identifies the generic themes encompassing all of the first and second order data [32] [33]. Significance was measured through counting occurrences of first, second and third order elements to identify themes and patterns throughout the different accounts. The patterns in the text were then linked by connections, highlighting key features and emergent concepts or themes that require further analysis.

Secondly, Systems Thinking analysis was applied to systematically identify and order findings into their respective components of the process [34]. This helped to identify the points within the process and system that are causing the most issues and where support can be implemented. Systems Thinking was used to visually convert the findings into simplified figures that highlight key emergent findings. Our analysis will focus on profiling participants to identify relationships between why users seek assistance, their demographics and how/if they lodged a tax return.

V. RESULTS

Results from the pilot demonstrate that there are many components of the system which are hindering the successful adoption and use of ATO digital services for users lodging tax returns. Specifically, without support many taxpayers would have been unable or would have struggled to lodge their documents.
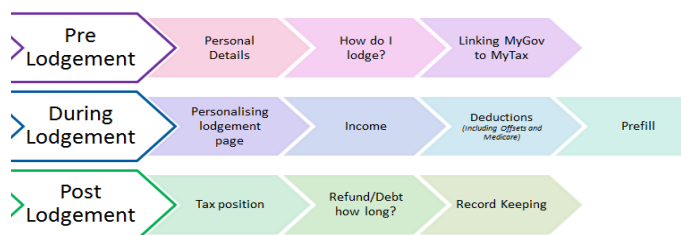

Figure 2 Pilot results - Lodgement Process Assistance Points

As highlighted in Figure 2, this is the first view of the system where intervention points are possible. Lessons learnt from this research demonstrate that, on average, taxpayers who sought assistance required it for more than one element of their tax return. Systems analysis demonstrates that there are more than one intervention points pre/during/post lodgement that should be leveraged for education and assistance. However, this research does understand that not everyone will be able to lodge digitally, and not everyone who needs help seeks help. For the purpose of client experience, it is important to recognise that negative experiences within the system will impact willingness to obtain assistance and advice in the future.

Descriptive analysis of the pilot data indicates that of the individuals who sought assistance utilising digital platforms for lodgement, the most frequent age group was 18-29 year olds (53.5%). This finding was unexpected. The other significant trend within this data was the high frequency of the pilot population seeking assistance who were in different life transitions (25.65%) (e.g., rental properties, deductions, income sources, retirement, etc.). Of the pilot population, those who had self-reported language barriers (17% of those seeking assistance) were more inclined to utilise paper solutions for lodgement rather than digital means. There is a concern that this will deter them from utilising digital means, and future research will determine whether or not digital or non-digital lodgement patterns are habitual, and if there are identifiable clusters of the population or demographics that are more inclined to behave in this manner.
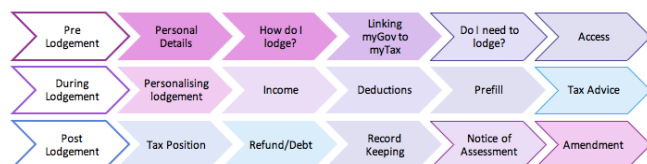

Figure 3 Extended research - Lodgement Process Assistance Points

Results from the extended research are still under development; however, preliminary results show how detailed follow-up research can improve the level of detail of the lodgement process systems view diagram, as shown in Figure 3. The current findings show that this process of analysis provides a more transparent view of the system, identifying the issues and points of the system that can be leveraged. This research has highlighted the links between digital and non-digital components of the tax system, e.g., understanding of tax and needing assistance. Figure 3 highlights the level of complexity associated with digital services in mandatory environments, especially when considering how adoption is impacted considerably by a multitude of factors. Implications of the extended lodgement process in Figure 3 are still under exploration.

This research is ongoing with additional research underway, including modelling of key outcomes, with a number of analytical techniques being explored. As is, the research continues to justify and validate the model outlined in Figure 1. Suitable methodologies to support the quantitative data analysis are currently being explored. This research can be applied to other areas of the public sector, especially those areas that have or are introducing mandatory digital services. With the transition of private sector entities to digital first platforms, the financial services sector, for example, could benefit from this style of research.

VI. CONCLUSION

This research seeks to understand the different barriers affecting adoption of mandatory digital services. The preliminary results highlight findings that need to be explored in further detail. The conceptual model will assist in identifying the interactions between the different elements outlined within the model, as well as increased details built within a systems view. Through ongoing data analysis and future papers, this model will be tested further. Future research will identify specific areas of assistance that are required going forward.

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