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Online Service Delivery Models – An International Comparison in the Public Sector

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Online Service Delivery Models – An International Comparison in the Public Sector

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Abstract

Governments around the world are facing the challenge of responding to increased expectations by their customers with regard to public service delivery. Citizens, for example, expect governments to provide better and more efficient electronic services on the Web in an integrated way. Online portals have become the approach of choice in online service delivery to meet these requirements and become more customer-focussed. This study describes and analyses existing variants of online service delivery models based upon an empirical study and provides valuable insights for researchers and practitioners in government. For this study, we have conducted interviews with senior management representatives from five international governments. Based on our findings, we distinguish three different classes of service delivery models. We describe and characterise each of these models in detail and provide an in-depth discussion of the strengths and weaknesses of these approaches.

Keywords

Online service delivery models, e-government, electronic government, one-stop portals

INTRODUCTION

Nowadays the need for efficient, cost effective processes and increased focus on customer satisfaction is no longer only applicable in the private sector; also the public sector faces similar challenges. As part of dealing with these needs governments all over the world rely more and more on information and communication technology to deliver an increasing number of their services electronically. These activities can be subsumed under the term e-government (Yildiz 2007).

Before the Internet emerged in the late 1980s, the focus of e-government was primarily on operational efficiency from an internal and managerial perspective. In this era, computers and local networks were installed to enhance internal communication without a noteworthy customer-orientation. It was the time, in which standardisation, departmentalisation and operational cost-efficiency were emphasised – labelled by Ho (2002) as the traditional bureaucratic paradigm. In the following, the first public services that were offered to citizens and businesses over the Internet mirrored the internal structure of the specific government. Each department offered their services independently from the online offerings of other departments. This led in some cases to a proliferation of redundant services as well as an increase in customer dissatisfaction as citizens needed to know the internal structure of the government in order to find the services they required and had to be aware of which services existed in the first place to fulfil their demand.

These disadvantages of traditional online service delivery models are the primary reasons why governments all over the world have started to investigate the use of one-stop online portals (OSPs). These portals commonly

apply the single window concept, i.e. they offer a single point of access to electronic services and information provided by different public authorities or even private service providers (Wimmer 2002b). Nevertheless, for the foreseeable future, governments will always also have to provide traditional ways for citizens to fulfil their obligations and business with public administrations (Wimmer 2002a).

In order to provide citizens with a not only easy to use, but also comprehensive view on the services they need, OSPs have to provide customer-oriented structures of public services independent of the fragmented structure of public administrations that deliver them. For example, life events and business situations serve as metaphors for structuring online public services from a customer's point of view so that he/she does not need to know about the actual functional fragmentation in the public sector. Therefore, a smooth integration of the external, customer-oriented and the internal, public administration-oriented view is needed (Wimmer 2002b). Although the emergence of OSPs for e-government services has been discussed for about a decade, the target state of integrated, virtual administrations offering a single portal for all public services has been achieved by only few jurisdictions.

This paper describes our research related to an analysis of the status-quo of different online service delivery models used for the provision of OSPs in a government context. The research is embedded in a study that we conduct with Smart Services Queensland, the department within Queensland Government, which is responsible for delivering all government services to its customers. This department currently investigates the benefits and required implementation steps to get from the bureaucratic model to an integrated delivery model via a seamless, whole-of-government one-stop portal in order to evolve their maturity of online service delivery. Thus, the main objective was to learn from governments that are already regarded as having reached one of the highest forms of evolution in their e-government efforts. As part of this research we conducted five case studies with different governments to analyse their specific online service delivery models. In particular, jurisdictions from Hong Kong, Singapore, New Brunswick, United Kingdom and Utah participated in this study. We included three sources of evidence in our analysis: focused individual interviews with senior representatives of the jurisdictions (primary method), documentary information provided by the representatives, and direct examination of the jurisdictions' online portals. Next to providing insights into the different cases, we will present a classification framework for the online service delivery models we encountered that is based on existing academic frameworks and concepts related to e-government. Furthermore, other governments can gain interesting insights into practices of five of the leading governments in regard to e-government and potentially adjust and improve their processes accordingly (see for example (United Nations 2010)).

The remainder of the paper is structured as follows. Subsequent to the research description and objectives that have been part of this section we will discuss related work to position our study in the existing body of knowledge. Then, we will describe our research method and outline all five cases. The next section will then elaborate on the three different models that could be derived from the analysis of the five cases. A discussion of the potential strengths and weaknesses of the various online service delivery models rounds off the analysis. The paper concludes by pointing out existing limitations of the study, summarising the findings and outlining directions for future research efforts.

RELATED WORK

Implementing a one-stop portal is not a simple technological change. Its designers have also to deal with many organisational issues and challenges (Charih and Robert 2004). Such web-based IT projects often go against the tradition of hierarchical structures and vertical decision making in government organisations leading to fundamental transformations within and across these organisations (Vaast and Binz-Scharf 2008).

In order to cope with these challenges, government organisations are seeking for best or good practices they can adopt. Governments can refer to a multitude of sources that give advice on how to set up web-based e-government projects and how to design the service delivery model. As we aim at giving advice to our state government partner how they should implement and organise their desired OSP, our research also touches upon the multiple existing contributions within the academic body of knowledge.

First, there are contributions like case narratives and success stories that describe examples of one-stop portal implementations, successful transformation projects in government in general and reflections of lessons learned. For instance, Vaast and Binz-Scharf (2008) provide insights into four cases from Switzerland and the US in which governments conducted web-based IT projects. Hoogwout (2002) gives examples of how Dutch local governments organise innovative online service delivery. As a last example, Ling (2002) provides interesting insights into the transformation projects in the United Kingdom.

Second, maturity and/or capability assessment models give normative advice how to improve e-government capabilities. Maturity models outline anticipated, typical, logical, and desired evolution paths towards maturity (Becker et al. 2010). For instance, Layne and Lee (2001) provide an e-government maturity framework that distinguishes four different levels, namely Catalogue, Transaction, Vertical Integration and Horizontal

Integration. Moving along these levels, government organisations increase their degree of “Integration” and their “Technological and Organisational Complexity”. The model provided by the United Nations (2008) is another option to classify a government’s maturity in regard to e-government. This model differentiates five different levels of maturity regarding e-government evolution, namely Emerging, Enhanced, Interactive, Transactional and Connected. Here, the transition to the last stage is expected to be the most complex one as coordination and collaboration issues increase considerably when integrating services horizontally (across different departmental functions on the same level of government) and vertically (across different levels of government).

Third, international benchmarking studies that compare and analyse multiple international jurisdictions with respect to their e-government efforts can give hints on good or best practices in service delivery model design (Berntzen and Olsen 2009). The following represent three major international benchmarking studies:

- Accenture (a global management consulting company) has analysed 20+ countries regarding their e-government efforts on a yearly basis starting in 2000 (the latest report can be found here: (Accenture 2009))
- Brown University (Prof. West and his team) conducted annual e-government studies starting in 2001 (the latest report can be found here: (West 2008))
- The United Nations Department of Economic and Social Affairs assessed the readiness of its nations regarding e-government starting in 2002 (the latest report can be found here: (United Nations 2010))

All three studies are primarily concerned with comparing the performance of different governments’ e-government efforts based on some indicators or metrics in order to rank them. They hardly give precise advice on how to reach good or better performance.

Finally, taxonomies of service delivery approaches can help to clarify which options a particular government organisation has or should pursue. For instance, Bent et al. (1999) distinguish different types of single-window approaches according to the two dimensions purpose and structure. Regarding purpose, a single-window initiative can serve to (1) improve accessibility through “gateways”, (2) improve convenience through “one-stop shopping”, and (3) overcome jurisdictional divisions through “seamless service”. These purposes are complementary and should not be considered mutually exclusive. Concerning structure, Bent et al. (1999) distinguish between six delivery modes, which can be (I) owner-delivered, (II) owner-delivered in a co-located environment, (III) shared delivery through integration, (IV) delegated delivery through a corporate service utility, (V) delegated delivery through an intergovernmental service utility, and (VI) delegated delivery through another service provider (multiplexing). The owner-delivered structure stands for the direct single-window service delivery by a department or a government. Shared delivery requires multiple governments or departments to deliver services in partnership through integration. Delegated delivery means that a service utility delivers services on behalf of one or more governmental organisations. Moving along these different structures (i.e. levels of service delivery ownership) the direct involvement in service delivery of the service provider (owner) decreases. According to Bent et al. (1999), this categorisation of single-window service delivery is independent of a particular type of channel (e.g., call centres, Internet sites and information bureaus).

EMPIRICAL FINDINGS

Research Methodology

As primary part of the case studies we conducted semi-structured interviews, each lasting for about an hour. This method is more flexible than, e.g., the structured interview method, as it allows for the exploration of emergent themes and ideas rather than relying only on concepts and questions defined in advance of the interview. The questions are typically asked in a similar order and format to make a form of comparison between answers possible. However, there is also scope for pursuing and probing novel, relevant information not previously covered in the interview guideline. The interview team consisted of two experienced empirical researchers, one with the role of the main interviewer and the other with a support role of note taking and further probing. The interviewers’ domain knowledge and expertise with the interview method is an essential element for success in these semi-structured interviews. For extension and triangulation of the interview data, a literature review was conducted and additional (internal) documents provided by the case study partners were analysed. However, while Hong Kong and New Brunswick gave us access to accompanying background documents, this was not the case for the UK and Utah. The period of data collection lasted from 11/2009 to 03/2010.

The semi-structured interview protocol¹ was designed and discussed amongst researchers and our case study partner to ensure the appropriateness of the questions related to the objectives of our study as well as to ensure the free flow of information based on the form and type of the questions. The questions focussed on different

¹ Available on request

themes such as demographical information about the participants, internal structure of the service delivery models, experienced challenges, development and implementation steps of the one-stop portal, involvement of citizens and cultural issues. All interviews have been transcribed before data was analysed.

Regarding the selection of participating governments, we relied on convenience sampling on a selective basis. As outlined, the objectives of our local case study partner were primarily to learn from successful approaches. As such, we were provided with direct contacts from governments that were selected by our partner. Their selection aimed at covering a) case study participants with different service delivery models out of which some coincide with our partner's prospective approach, and b) case study participants that are generally known to be leading in e-government G2C service delivery, i.e. they are for instance well ranked across the previously mentioned international benchmarking studies or stand out as a state government. All governments that were contacted agreed to participate with the incentive to receive a final report which highlights our findings. Participants from Hong Kong, Singapore and the United Kingdom represented federal governments, whereas participants from New Brunswick (Canada) and Utah (United States of America) represented state level jurisdictions. The latter two participants could potentially be seen as proxies for their respective national government, which are both considered to be leaders in their e-government efforts based on the reports referenced previously. Sometimes, we were redirected to other contacts who were directly involved in the service delivery projects of the respective governments so that we were able to ensure that participants had extensive domain knowledge and would therefore provide insightful and accurate reflections of their respective service delivery approaches.

Case Descriptions

Hong Kong

In 2007, Hong Kong launched its one-stop portal GovHK including a new underlying service delivery model. In contrast to the preceding "ESDLife" e-government model, GovHK is completely government-owned and government-managed, comprises a clear brand, offers one-stop access to a wide range of services and provides these services through citizen-centric service clusters². These core attributes were regarded as crucial in order to increase customer satisfaction and take-up rate, improve internal processes, and to eventually save costs through a higher use of online services.

From a citizen's perspective, GovHK is positioned as the only one entry point to government services. Four main user groups are distinguished on the homepage, namely Residents, Business & Trade, Non-Residents, and Youth, whereby the Residents section is the default when navigating to gov.hk. The homepage features a teaser with current events, shortcuts to most popular services, and several brief overviews of the weather, news, traffic conditions, etc. The central parts of the website are 11 topic-based clusters that can be navigated through in order to reach all government information and services. While most popular information is directly accessible on the portal, it is frequently linked to departmental sites or dedicated transactional sites (such as eTax) on the lowest, i.e. most detailed level. Despite of this, GovHK allows to browse through all services via citizen-centric clusters in a unified design across the whole site.

Internally, GovHK runs under a federated business model where the overall portal is funded and owned by a high-level government agency, while service clusters are controlled by Cluster Management Boards (CMB) and Cluster Management Teams (CMT). A CMB steers and oversees the ongoing development and management of a cluster. It is usually chaired by the Deputy Secretary or Deputy Head of the cluster owner and has directorate officers from participating bureaux and departments (cluster participants) as members. The cluster owner is mostly the bureau or department that delivers the most services for a cluster. A CMT is the operational counterpart to a CMB. It looks after the ongoing development and day-to-day operation of a cluster and consists therefore of people with different skill sets in areas such as customer research, website and e-application development, copywriting, content management, marketing, promotion and project management. At last, bureaux and departments own, fund, and manage the respective service clusters they contribute to. Besides these main actors for cluster management, several working groups and committees exist that take over responsibilities for specific overarching tasks with respect to, e.g., portal design, security policies, general supervision, and technical support.

In conclusion, GovHK, which was recently redesigned, provides users with seamless access to all government services from users' perspectives through a single portal. In the back-end this structure is realised through overarching steering committees and clusters (comprising CMBs and CMTs) that act like virtual organisations on top of traditional functional bureaux and departments.

² Depending on the jurisdiction in focus, groups of services are referred to as clusters, bundles, or categories. These terms are regarded as synonyms in this respect.

United Kingdom

The UK federal government launched its new one-stop portal for citizens, Directgov, in 2004 with one prospect being to save costs by getting people away from call centres and face-to-face contact. In order to achieve this goal, the government realised that customers must be able to find what they are looking for and complete transactions end-to-end. This was not the case in the previous model where links were provided to an abundance of websites of the different departments.

Directgov, accessible under direct.gov.uk, is dedicated to provide all citizen services in one place. From the homepage one can start to browse through available information and services via a mixture of 16 topic-based and demographics-based service clusters. The portal features a very consistent design, even with respect to dedicated transactional service websites such as managing your driving licence, for example. Also, a lot of informational content is provided right on the portal rather than linking to departmental websites. Concerning services that are delivered by lower levels of government, links are provided.

Directgov is part of the Government Communication Group which sits within the Efficiency and Reform Group of the Cabinet Office. It is formed of a central team who run the infrastructure and central functions, and departmentally based 'franchise' teams which provide the departmental content for a range of topics and audiences. This cross government approach brings together information in ways that make sense for the citizen.

Overall, Directgov represents a highly integrated one-stop portal that provides users with a lot of information not only related to issues that the federal government is responsible for.

Singapore

Since 1980, Singapore continuously pursued national IT and e-government plans, which made Singapore one of the computer savviest countries and a recognised leader in e-government. With respect to G2C online services, Singapore launched the eCitizen portal (ecitizen.gov.sg) in 1999, positioning it as the first-stop gateway for all government services on the web, organised around citizens' needs. In 2004, eCitizen was streamlined with a new overarching gov.sg site.

The core of eCitizen's homepage are seven topic-based service bundles, each of which covering a description of the bundle and links to corresponding services and topics that are provided on another site, though. These topic-related sites have a consistent layout among each other, but different to eCitizen's homepage. When drilling down through these sub-portals, one eventually frequently arrives at detailed sites from agencies and departments. In addition to the topic-based service bundles, the eCitizen homepage provides direct links to most popular services in the areas of Online Payment and general Popular E-Services. Thus, eCitizen is not positioned as a one-stop portal, but as a service/information gateway. Another important aspect of Singapore's G2C service delivery is My eCitizen (myecitizen.sg), which is also linked to from the eCitizen homepage. My eCitizen is the result of Singapore's early introduction of Customer Relationship Management (CRM) functionalities. In 2003, eCitizen already allowed users to personalise the website so it could offer appropriate information and reminders on e.g. returning library books or parliament notices. In order to personalise eCitizen, users had to login with their credentials and provide information such as age, employment status, etc. Such new offerings drove both take-up and satisfaction (Accenture 2003). Today, the offers are available under My eCitizen with much more personalisation options available. Users can now subscribe to different services and personalise lifestyle channels such as MyFamily, MyCareer and MyRecreation. The portal provides access to both private and public sector services and content.

While assembling services according to users' needs, Singapore offers its services via seven topic-based sub-portals (and My eCitizen) rather than having one all-inclusive portal. In order to drive changes across individual agencies that are responsible for their agency-specific ICT and services, the Singapore Government shows strong leadership commitment, formulates strategic action plans, and IDA (Infocomm Development Authority of Singapore – a high-level statutory board of the Singapore Government responsible among other things for e-government programmes) takes a centralised approach to funding and infrastructure. Complementary, central initiatives that require whole-of-government involvement normally have a steering committee comprising senior leadership of key participating agencies, and agencies' working levels are involved at an early stage in order to secure support and to identify potential issues or resistances.

On the whole, Singapore splits its e-government service delivery into several layers, thus positioning eCitizen as a first-stop gateway to all services. The infrastructure, though, is very connected in the back-end with building blocks such as the SingPass single-sign on service, payment and messaging services, and more.

Utah

In the US, the state portal Utah.gov has won numerous awards and is regarded as one of the best according to several US nation-wide surveys. In 2009, the current version of the site was introduced, which comes with numerous Web 2.0 features, such as AJAX-supported search. By now, the web channel is established as the

primary delivery channel for government services so that, regarding offline service provision, the five-day work week could be reduced to a four-day ten hour work week in order to gain additional efficiencies and reduced energy costs. In return, online services are e.g. supported through a 24/7 live chat.

Utah.gov's front-end is strongly search-oriented. The search function, which was developed in collaboration with major search engine companies, displays results dynamically while typing. Overall, there are 1220 online services from federal level, local level and mostly state government level searchable and accessible from Utah's site. However, utah.gov hardly provides any information or services on the portal itself, but rather maintains the catalogue of services through various attributes and tags, and links to them. While searching is at the centre of the site, it is also possible to find services via 12 residents service clusters.

Utah Government's Chief Technology Officer (CTO) directs the portal's development and management as well as the service tagging and description processes relevant for the search capabilities. In doing so, he regularly consults with the product management council consisting of business unit representatives in order to coordinate, plan and overview the development of the portal as well as state-wide e-government initiatives. Single agencies are responsible for their online appearance, but have to adhere to some guidelines and policies, such as promoting the utah.gov brand, for example. The portal as a whole is by now to the largest extent self-funded by charging businesses for a range of value-added services. This again gives the CTO more flexibility and a bigger scope for developing the portal.

In conclusion, utah.gov provides first-stop access to a large amount of services from all three levels of government. In order to cope with the amount of services, Utah focuses on the exploitation of modern search technology.

New Brunswick

In 1992, out of a need to save costs and improve customer satisfaction for government services, the Department of Finance of the Government of New Brunswick (GNB) set up a pilot project that regrouped a number of government offices into a (physical) one-stop shop where workers could deliver the services of several departments in one place. Based on the success of this project, the pilot grew to what is today the crown corporation Service New Brunswick (SNB): An independent corporation owned by the Province of New Brunswick with a mission to improve the delivery of government services to the public. SNB's transaction-focused service delivery is based on a multi-channel approach comprising over-the-counter service centres, tele-services and the Internet. The back-end consists of one infrastructure that is interfaced from the three delivery channels.

With respect to online government services, New Brunswick basically provides two entry points for customers: The transaction-oriented site from SNB (snb.ca) and the more information-oriented site from GNB (gnb.ca). However, while not delivering all services, SNB aims at providing a comprehensive portal by linking to any further information and services as requested from citizens and businesses. SNB's recently overhauled homepage is split into a Residents section, a Business section and Most Requested Services section. Under the Residents section, services are grouped into eight categories, out of which seven are topic-based and one comprises life events. From these categories, services are partially directly accessible without any further drill-down. In contrast to SNB's offer, GNB's site (gnb.ca) provides a lot of detailed information. This comprises for instance information about legislative assembly, the government and tourism, which are not covered on SNB's site. Thus, GNB builds the counterpart to SNB, whom it links to for all contracted transactional services.

SNB's service offers are based on contracts with agencies from all levels of government that want SNB to deliver a particular service on their behalf. SNB charges the agencies for delivered services and operates on a virtually self-financed basis. As SNB gets contracted on a voluntary basis, SNB is forced to provide cheap and high-quality services at the same time. As the web is the cheapest delivery channel for both SNB and its contractors, this channel is particularly promoted and innovated in order to raise customer satisfaction and eventually the use of that channel.

In summary, New Brunswick employs a delegated approach through SNB's close to market-driven service delivery on behalf of government agencies. As SNB has to run on a virtually self-financed basis, it operates like a business and is forced to excel in efficient service delivery and customer satisfaction in order to grow and generate revenues.

ANALYSIS

The framework we used for the analysis of these cases was inspired by the related work of Bent et al. (1999) who report on an analysis of single-window approaches in Canada. Single-window approaches are not limited to online portals but can also comprise other channels. Thus, while our study is more focussed with regard to the unit of analysis, it has a broader scope in terms of the internationality of participating governments.

Bent et al. (1999) perform their analysis along two dimensions. In our analysis, we adopted the “structure” dimension, which distinguishes between forms of involvement of different entities for presenting, providing and delivering services for the online channel. We abstracted from the six different delivery modes introduced by Bent et al. (1999) in order to simplify classification and limited the possible values to owner-delivered, shared delivery, and delegated delivery. The other dimension, “purpose”, appeared less useful to us as its values are complementary and not mutually exclusive, so that a unique classification of the analysed cases is impeded. Instead, we introduced “functional integration” as a second dimension referring to the level of front and back-end integration. In particular, this dimension allowed us to differentiate between “first-stop” and “one-stop” portals. On a “first-stop” portal, information about and links to services are presented, but for the actual service consumption citizens need to navigate to dedicated websites maintained by the service providing agencies or departments. “One-stop” portals, on the other hand, integrate information about a service and the possibility for service consumption as part of the same portal.

Additionally, two other dimensions are potentially identifiable based on the third instantiation (“seamless services”) of the dimension “purpose” by Bent et al. (1999), namely “horizontal integration” and “vertical integration”. Whereas “horizontal integration” refers to the numbers of departments that are involved in offering their services as part of the portal (single department, multiple departments, all departments), “vertical integration” refers to the different levels of government that are actually involved in the service provision (federal, state, local). The latter two dimensions can also be found in the maturity model by Layne and Lee (2001). We did not include these two dimensions in our classification, since all cases exhibited the highest level of horizontal integration and an analysis of the vertical integration would have been not very meaningful since the analysed portals belonged to governments at different government levels. Figure 1 shows the resulting classification of the analysed cases.

Functional Integration	One-stop	-	UK Hong Kong	-
	First-stop	-	Singapore Utah	New Brunswick
		Owner-delivered	Shared-delivered	Delegated-delivered
		Structure		

Figure 1: Classification of the analysed cases

Based on the description of the different cases, we have identified three distinguishable online service delivery models, namely the one-stop/shared model, the first-stop/shared model, and the first-stop/delegated model, utilising a bottom-up, inductive approach based on the information that we analysed for the respective cases. Further empirical research investigating the applicability or our proposed adaptations of the existing contributions in the academic body of knowledge will show if all dimensions (Structure, Functional Integration, Horizontal Integration, and Vertical Integration) are viable.

One-stop/shared Model

This model is aimed towards providing a real one-stop experience where all public services are delivered through a one-stop portal. In general, this model can be observed in the UK and Hong Kong. However, at the current stage, there are still differences with respect to the amount of information and services integrated into the portal. The most integrated instance is the UK, followed by Hong Kong. From a user perspective, the model provides real one-stop shopping. Additionally, the consistency of the website design is typically high as all services are provided through the portal. Services found within the portal provide both information as well as transaction. There are typically three entities involved in managing the OSP:

- There is a high-level coordinating committee that is responsible for deciding what service bundles should be offered to the citizens and for coordinating the overall OSP management activities.
- For each service bundle a cross-departmental team is responsible for bundle-specific activities. Hence, a service bundle can comprise services from multiple departments. Typically one department that is affiliated the strongest with one service bundle will take the lead in managing the bundle.
- On the lowest level are the different departments themselves that are responsible for the accuracy of the content in the bundles.

In both cases, UK and Hong Kong, the one-stop service delivery model is publicly funded.

First-stop/shared Model

The online service delivery models of Utah and Singapore are not pure one-stop models as they are distinctively different in regards to service integration. Singapore's eCitizen portal is clearly positioned as an entry point only. It provides direct access to the most popular services and to the customisable site My eCitizen. Seven topic-based service bundles link to further services and the websites dedicated to each bundle. Singapore rather pursues a back-end system integration approach (e.g., authentication and online payment infrastructure) and customisable service delivery via My eCitizen than a comprehensive one-stop portal approach.

Utah.gov falls into the same category of a first-stop model, although website layout, search engine-oriented approach and environmental settings (e.g., multi-level government structure) in Utah's case are very different to Singapore's approach. However, Utah also only provides an initial entry point to online services (plus search capabilities for all other services) and links to the actual content web sites. Thus, the consistency of the websites is not as high as in the one-stop model, because the departmental websites might present their services using different layouts or structures. Furthermore, no informational or transactional services are offered through the portal as only links are provided which obviously limits the integration of different services. In both cases the model has been publicly funded as well. Utah generates revenues through certain business services, though.

First-stop/delegated Model

A major difference of this model to the other two models is that services are not solely provided by government agencies. In this model, represented by Service New Brunswick (SNB) and the Government of New Brunswick (GNB), transactional services are provided by an *external unit* (SNB), while detailed information is rather available on the government's portal (i.e. GNB).³ The Crown Corporation SNB acts as a mediator for services delivered on behalf of various government agencies and operates on a virtually self-funded basis. While SNB provides one-stop shopping for transactional services and acts as a gateway for detailed information, this is essentially the other way around for GNB.

DISCUSSION

Based on the description of the observed service delivery models, the following section will provide a discussion of potential strengths and weaknesses.

Table 1. Overview of the strengths and weaknesses of the different types of government portal approaches

	One-stop/shared	First-stop/shared	First-stop/delegated
<i>Strengths</i>	<ul style="list-style-type: none"> • High information integration • High design consistency • Potential cost savings in the long run because of low redundancy • High customer satisfaction through real one-stop shopping 	<ul style="list-style-type: none"> • Lower complexity on portals • Singapore: Advanced customisation, authentication and payment frameworks • Potential for strong back-end integration and policies 	<ul style="list-style-type: none"> • Cost-effective • Flexible • Fostering innovation & efficiency • Potential for quick expansion of offered services (vertically and horizontally)
<i>Weaknesses</i>	<ul style="list-style-type: none"> • High complexity • Probably high initial set-up costs • Bringing all information onto one platform might become a long and complex journey • Potential barrier: Departments are typically hesitant to give up their websites 	<ul style="list-style-type: none"> • No real one-stop convenience • Multiple layers and designs for service delivery • Potentially sinking customer satisfaction because of lower one-stop convenience 	<ul style="list-style-type: none"> • Two entry point for public services • Lower website consistency • Sinking customer satisfaction because of lower one-stop convenience • Potential of lock-in of clients

³ Even though SNB operates like an external unit, it is still owned by GNB.

One-stop/shared model

The GovHK model is close to an “ideal” one-stop model. In contrast to any kind of delegated model, operations are supervised and executed by government administration. This facilitates the pursuit of political goals such as a mandatory deployment of certain services through the OSP. While the model can be run self-financed in the long term, it is assumed that it will not be as cost-effective as the market-driven SNB (first-stop/delegated) model. This continuous journey towards a real one-stop franchise model reflects the challenges of the model: It requires a lot of effort (and funding) to integrate all services and departments might be hesitant to give up their individual websites. Related to that, the complexity of the one-stop portal becomes very high. On the other hand, the model has the potential to gain high economies of scale since eventually no redundant website maintenance and development activities would be conducted (e.g. by the numerous departments). Furthermore, the model can achieve a high degree of design consistency as all services are provided in the context of the same portal.

First-stop/shared model

Singapore’s eCitizen site is set up as a first-stop portal. Customer-oriented bundles and links to most popular services as well as the My eCitizen portal are provided, but no in-depth information or services are offered. These functionalities are mostly provided on bundle-specific sites and in some instances on departmental sites. The complexity of these bundle-specific sites is therefore much lower than having every service integrated into one portal. Singapore has a very advanced back-end infrastructure and the CRM-enabled My eCitizen site, which provides integration potential of functionality (e.g. authentication and payment). So far, no other jurisdiction seems to have such an advanced back-end infrastructure or customisable site. In the case of Utah.gov, a distinguishable characteristic is a strong focus on search capabilities across government levels. While this model does not provide real one-stop shopping, it might have the advantage that the sites’ complexities are reduced and less integration effort is necessary. The drawback, however, might be that customer satisfaction declines based on the lower one-stop convenience.

First-stop/delegated model

The first-stop/delegated model has the advantage of being very cost-efficient and providing an incentive to improve service delivery. Being operated like a business, it seems as if SNB was more on its toes than the publicly managed instances. However, no information was available about how many resources were needed to set up SNB prior to its launch in 1998. SNB is transaction-focussed and operates more like a gateway for all other information. It is questionable whether this will impede customer satisfaction for the web channel, and whether SNB will make changes so that clients can also offer their content through SNB. A potential threat of the model might be that SNB gets very powerful, thus being able to lock in departments or charge clients at a high level. However, the portal and its infrastructure are still indirectly owned by the province of New Brunswick. For over-the-counter and hotline services, the SNB model seems to be very cost-effective and it provides, due to its market-driven nature, incentives to improve service quality. With respect to the online channel it is questionable if the services provided by SNB will stay satisfactory or whether citizens will demand a solution with more informational and transactional services integrated into one portal. Even though SNB links to additional content as requested by its customers, there might exist the threat that two entry points with different layouts and sets of provided services confuse citizens. On the other hand, the fact that SNB has to operate like a business provides incentives to offer innovative services of high quality and efficiency.

CONCLUSION

The present study was designed to describe and discuss the current state of the practice of online service delivery models with international leaders in the area of e-government. The study has shown that among the analysed cases three distinct online service delivery approaches can be distinguished based on a categorisation according to functional integration and structure. Based on the information collected from in-depth interviews and supporting documentation this paper characterised these three approaches and also discussed potential strengths and weaknesses of each model. These current findings enhance our understanding of existing practices in e-government and provide insights about the benefits and challenges of different approaches. These results will not only add to the academic body of knowledge about online service delivery in e-government but also have important implications for future practice of jurisdictions that are about to embark on the journey towards seamless, whole-of-government OSP implementation projects and the related organisational transformations in the back-end. Particularly, this study has confirmed the major challenges of e-government transformation to be

- An information management problem, rather than an IT problem
- Fostering horizontal (and vertical) collaboration in order to establish a common customer-oriented culture.

For researchers and practitioners, this study provides an understanding of different service delivery models and their strengths and weaknesses. It provides insights into five of the leading governments in online service delivery and classifies their approaches in three different models, each having different comparative advantages and disadvantages. After all, none of the models seems to be superior per se, and all discussed approaches achieve high customer satisfaction. Which model fits best for a jurisdiction should therefore be evaluated on a case-by-case basis. In this respect, the herein presented findings can be of help. Our study presented and discussed some general design options, i.e. delivery models that are all successfully applied in practice.

A number of caveats need to be noted regarding the present study. The amount of information available for the analysis of the five different objects of study varied, thus exacerbating comparability. For example, while Hong Kong and New Brunswick gave us access to accompanying background documents, this was not the case for the UK and Utah. Comparability is probably also affected by several other factors, such as the different levels of government the analysed OSPs covered (e.g. state vs. whole-of-government), different historical situations and cultures etc. Moreover, the approach of conducting semi-structured interviews with a limited sample size of participants, while leading to more in-depth insights, might also have hindered comparability of the information provided.

In our future work we will explore the details related to the development and maintenance of the information architecture, which centrally refers to the question of clustering and bundling public sector and potentially also private sector services based on citizen-oriented topic categories, demographics or life events. Current approaches are very limited, expensive and highly manual, capitalising on citizen focus groups performing bundling exercises of a very limited subset of the complete portfolio of services. We aim at learning from the bundling exercises to derive general patterns that could be leveraged in semi-automated approaches utilising service description metadata to support information architecture development and maintenance activities.

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