

REALIZING JOINED-UP GOVERNMENT – DYNAMIC CAPABILITIES AND STAGE MODELS FOR TRANSFORMATION ¹

Abstract

Joining up remains a high priority on the e-government agenda and requires extensive transformation. Stage models are predictable patterns that exist in the growth of organizations and unfold as discrete time periods that result in discontinuity and can help e-government development towards joined-up government. Although stage models may be conceptually appealing, these models are often not empirically validated, do not transcend the level of individual organizations and provide little practical support to policy-makers. Furthermore, they do not include the dynamic capabilities needed by organizations to transform from one stage to the next stage.

In this paper, a five-staged model is presented that describes the progression from stove-piped situations toward a nationwide, customer-oriented and joined-up government. For realizing each stage the dynamic capabilities that are needed are identified. This model is empirically validated and helps government agencies benchmark their position, realize their role in the formation of a joined-up government, develop the necessary capabilities and adopt centrally developed infrastructural facilities aimed at moving to the next stage. We found that growth stages are useful for providing guidance and can be used by policy-makers to stimulate the developments of capabilities needed by organizations to migrate from one stage to another.

Keywords: Stage models, joined-up government, service provisioning, coordination, dynamic capabilities, transformation

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INTRODUCTION

In many countries, governments want to improve the services they provide to citizens and businesses, displaying a higher level of responsiveness in a dynamic and continuously changing environment (Chen, 2002). They want to create a joined-up government, which refers to the “consistency between the organizational arrangements of programs, policies, or agencies, which may enable them to collaborate” (6, 2004, p. 106). In the Netherlands, integrated service delivery is primarily realized at the organizational level, and it is slowly moving towards the national level. Many individual government organizations provide (online) one-stop shops for their own products and services. Because citizens and businesses still have to manage and coordinate their interactions with the various government organizations, there is a need for more horizontal and vertical orchestration and integration across organizations. To ensure a joined-up or integrated government service delivery, governments have to deal with the problem of fragmentation of government within the constitutional, legal and jurisdictional limits (Scholl & Klischewski, 2007).

To further the development of e-government in the Netherlands, a number of basic infrastructural facilities have been developed or are under development. A nationwide authentication and identification facility, called DigiD, and a facility designed to generate online forms, called e-forms, have already been developed and are used by an increasing number of government organizations (see <http://www.ictu.nl/>). These facilities can be shared and used by other organizations to develop an online government presence. One of the facilities that is currently being developed is the Personalized Internet Portal (PIP) (<http://www.e-overheid.nl/sites/pip/>), with the aim of mediating electronic interactions between citizens and government agencies (for businesses other initiatives exist), and allowing customers to access

multiple government organizations through a single web portal. The underlying idea is that agencies provide their transaction services using this facility and are given access to the relevant information, relieving citizens from having to supply the same information over and over again. The use of this infrastructural facility is expected to have an impact on the architecture of many, if not all, government organizations. As such, it is crucially important for government organizations, the potential service providers, to understand how this component will fit into their existing processes and what their future architecture will look like, if they are to create joined-up government. As such, the agencies involved are looking for support in their transformation to this next stage of e-government. Furthermore, if they understand the potential and impact of these infrastructure facilities, they may start influencing their development, which may be easier at the early stages of the development process than once these facilities have been developed.

The development and implementation of enterprise-wide technologies is a major and complex undertaking (Hazlett & Hill, 2003) and there is usually limited support to guide the transformation process. The problems involved in supporting government organizations in their development towards mature e-government and stimulating the use of infrastructural facilities have made it necessary to develop a stage model that can guide the transformation process and make it clear what is going to happen and which capabilities need to be developed to realize the transformation (e.g. Dutch Government, 2004). In this respect, the development of joined-up government goes through a number of growth stages. Growth stages or evolutionary models are popular in organizational research and information systems, and they have been applied in various domains (Andersen & Henriksen, 2006; Greiner, 1972; Janssen & Van Veenstra, 2005; Layne & Lee, 2001; Nolan, 1979). Nolan (1979) made this kind of evolutionary models popular

by creating an intuitively appealing model. However, all these existing models turned out to offer little support to the government agencies involved in this study, it proved hard to apply the models to practical situations and there was little help to move from one stage to the next. The aim of this study is to develop a stage model – and the dynamic capabilities needed to migrate from one stage to the next – that helps decentralized government agencies to adopt the infrastructural facilities in their efforts to improve their web-based service delivery. Dynamic capabilities help organizations to adapt and are needed for facilitating the transformation from one stage to another. This paper is structured as follows: we begin by describing the scientific background of stage models and present dynamic capabilities theory, after which we outline our research approach. Next, we discuss the stage model and analyze the capabilities that are needed in each stage. Finally, we present our conclusions and provide recommendations for further research.

BACKGROUND

Transformation is a complex problem to which no universal approach exists and for which different types of models can be used. Managers want models that help them realize the transformation, whereas policy-makers are more interested in models that help them shape the right direction and identify relevant elements. A number of authors have described the evolution of government efforts to provide electronic services in a model of growth stages (e.g. Ghasemzadeh & Sahafi, 2003; Janssen & Van Veenstra, 2005; Layne & Lee, 2001; Moon, 2002; Rao, Metts, & Monge, 2003). Most stage models have emerged from daily practice or use some kind of classification methodology. Generally speaking, the stage models described in literature have not been tested for applicability in practice. One frequently referred to is the one suggested by Layne and Lee (2001), who focus mainly on the municipal level and who identify four growth

stages: cataloguing, transaction, vertical integration and horizontal integration. The stages are explained in terms of the various levels of integration and complexity involved. Andersen and Henriksen (2006) argue that the model suggested by Layne and Lee reinforces the technological bias pushed by organizations that promote e-government. They argue that we should move beyond the economics-of-scale benefits and focus more on streamlining processes and improving communications with customers. The emphasis should be on the strategic use of IT and not just on operational and technical interfacing, a call for “a more reflective and critical use of IT” (Andersen & Henriksen, 2006, p. 238). Although we agree with this argument, they do not provide actionable support, theoretical foundations or empirical evidence. In contrast, in the research presented in this paper we use empirical research to demonstrate that stage models do provide guidance. Furthermore, we will argue that many stage models, including the one suggested by Layne and Lee, lack a clear theoretical foundation and that identification of stages needs to be based on the concept of discontinuity, while dynamic capabilities theory can be used to provide guidance for the transition from one stage to another.

The aim of evolutionary models is to break down organization development into a series of discrete stages, with development moving from one stage to the next (Nolan, 1979). The basic idea behind stage models is that descriptive stages can potentially be used in a prescriptive manner. Nolan (1979) suggests that stage models can be viewed as learning models that help organizations move from one stage to the next. Traditional stage models assume that (Nolan, 1979):

1. stages are sequential in nature, and
2. stages occur within a hierarchical and often irreversible progression.

Solving the problems of one stage will create a new set of problems and tasks that the organization must address before it can move on to the next stage (Kazanjian & Drazin, 1989). Traditional stage models suggest that organizations progress through stages of maturity. However, in our view this is not necessary and is organization dependent. The motivation behind the latter is that organizations may simply not have the resources and capabilities needed to reach the highest growth stages. Furthermore, organizations can skip one or more stages if they have the right capabilities for addressing the type of problems and tasks of these higher stages (i.e. they might have learned from frontrunners and use this knowledge to skip a stage), and not all organizations may have client groups or types of services that do not need these higher stages. This is in contrast with the view on traditional maturity models.

Stage models are based on the idea that transformation and evolution can be classified in identifiable, discrete stages. A fundamental concept with regard to classification is *discontinuity* (Cook, 1996; Janssen & Van Veenstra, 2005), which is largely neglected or at least not made explicit in e-government stage models. Discontinuity involves finding the boundaries for groups or, in the context of this study, stages that are alike. The criteria for classification depend on what is being classified and on the objective of the stage model. When applied to stage models, the concept of discontinuity is used as a demarcation between stages in which incremental improvements take place. In a shift from one stage to the next, the developments break with the incremental changes that mark continuity within an individual stage, with substantial change being required before organizations are considered to enter a next stage. The concept of discontinuity as a criterion for classifying stages is visualized in figure 1.

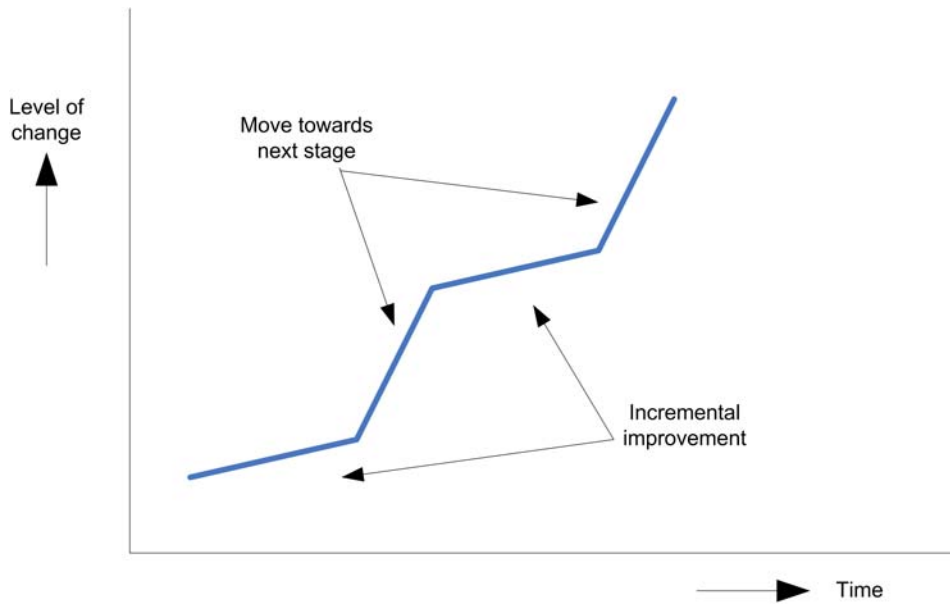


Figure 1: incremental and stage-based developments

This development is similar to the difference between Business Process Reengineering (BPR) and Total Quality Management (TQM) movement (Hammer, 1990; Hammer & Champy, 1993; Meel & Sol, 1996; O'Neill & Sohal, 1999). TQM involves bottom-up implementation via continuous improvement-oriented activities, whereas BPR focuses on achieving radical organizational change, by rethinking business processes in which a new strategic vision rather than technology plays a key role (Hammer & Champy, 1993).

Tasks, systems and other elements might be different for each change and might need to change. Because the demarcation between stages is characterized by discontinuity, organizations may require different capabilities to reach next stages. Eisenhardt and Martin (2000) have found that dynamic capabilities change in nature depending on the level of transformation, and that there are differences between a stable environment and processes, and volatile environment and fragile processes. The *dynamic capability theory* (DCT) describes the ability of organizations to adapt their assets and resources to rapidly changing environments (Eisenhardt & Martin, 2000;

Teece, Pisano, & Shuen, 1997). The concept of dynamic capabilities arose from limitations of the resource-based view, which considers resources as static and is thus unable to explain how organizations deal with changing environments. Dynamic capabilities help organizations change their resource configurations in order to adapt to a changing environment. Teece et al. (1997) define dynamic capabilities as “the ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” (Teece et al., 1997, p. 516). Eisenhardt and Martin (2000, p. 1105) describe dynamic capabilities as “a set of specific and identifiable processes”. Furthermore, they argue that dynamic capabilities are idiosyncratic in their details and emerge from path dependencies, which take into account past decisions and the procedures and routines involved, and are frequently viewed as a constraining factor for change. Path dependency is an important concept when it comes to understanding social and political processes, as established institutional patterns and structures often reassert themselves in the process of adopting new technologies (Kay, 2005). DCT suggests that the theoretical underpinnings for the conclusion of Andersen and Henriksen (2006) (i.e. that stage models reinforce the technological bias pushed by organizations promoting e-government) are related to path dependencies.

A variety of dynamic capabilities for adapting to changing circumstances have been identified in various domains, including outsourcing (Feeny & Willcocks, 1998), innovation (Eisenhardt & Martin, 2000) and e-business transformation (Daniel & Wilson, 2003). Teece et al. (1997, p. 518) have suggested three types of capabilities: 1) coordination and integration, 2) learning and 3) reconfiguring and transformation. Feeny and Willcocks (1998, p. 10) have identified nine core capabilities and categorized them in the following three groups: 1) business and IT vision, 2) design of IT architecture and 3) delivery of services. Eisenhardt and Martin

(2000, pp. 1107-1108) have identified capabilities for 1) the integration 2) the reconfiguration and 3) the gaining and releasing of resources, while Daniel and Wilson (2003, p. 286) have identified eight distinct capabilities associated with 1) the need to innovate and 2) the need to incorporate or integrate e-business in the existing organization. All these models focus on identifying capabilities in one particular situation and none of them focus on which type of capabilities are needed over time. In this study, we focus on identifying capabilities that are needed for the transformation from one stage to another, taking the capabilities found in literature as a starting point to identify capabilities in practice.

The evolution of capabilities is influenced by the pacing of experience (Eisenhardt & Martin, 2000). If capabilities are developed too soon, people can be overwhelmed, as their ability to absorb new information is limited (Cohen & Levinthal, 1990). On the other hand, if they are developed too late, this may lead to a lack of experience and an initial failure to move to the next stage. We therefore argue that an appropriate and timely development of the necessary capabilities can improve transformation. DCT suggest that government organizations need capabilities to change their resource mix and in this way move on to a next stage. By gaining insight into the capabilities that are required to move to a next stage, developing them at an early stage can reduce the transition time between stages. The stage model can potentially serve as a planning instrument for policy-makers to stimulate the development of capabilities at the right time. Based on the capabilities required for each stage, governments can prepare for the next generation of digital government infrastructures.

RESEARCH APPROACH

Existing e-government stage models focus on individual organizations as the basic unit of analysis, while none of them focus at the national level. The aim of this study is to develop a

stage model that helps local organizations to integrate infrastructural facilities developed at a centralized level and helps policy-makers to stimulate development of capabilities required at the local level. The model should also help individual organizations to put their efforts into a national context. Furthermore, it should help government agencies understand the general developments and integrate the basic infrastructural facilities that have been developed at the national level into their own systems architecture.

In the light of our objective, our stage model should start with individual organizations and expand to nationwide joined-up government. We developed, refined and validated the model between May and December 2007. We began by identifying the continuities in the model via interviews with people from various backgrounds at two of the largest social security agencies in the Netherlands and at a major municipality. The semi-structured interviews included questions concerning the past and current situation, technology developments, innovations, and capabilities required to reach future stages. We also discussed current stage-models with the interviewees. We developed and successively refined the initial stage model in an internal expert group session with government representatives, consultants and academics, including experts from the Dutch ICT executive office. In this session, the initial model was presented and the stages, the demarcation between them and the required capabilities were discussed, evaluated and refined. The government representatives included public managers and policy-makers as well as technology- and service delivery experts. To validate our model, we discussed it in a session with over 30 government strategists. It was found that the model adequately describes current developments, ideal future stages, and dynamic capabilities that were considered necessary. The stage model was viewed as not too complex to restrict communication and as comprehensive enough to show what is expected to happen.

GROWTH STAGES

Deriving the stages

Many growth models are derived without having any empirical and theoretical underpinnings, whereas growth stages can be derived on the basis of the concept of discontinuity. We wanted to classify joined-up e-government evolving from stove-piped, individual organizations towards a national level in which joined-up government is realized. In the former situation, the functional silos are barely coordinated, whereas in joined-up government all the elements scattered over many organizations act in a coordinated fashion. In determining the growth stages we began by looking at the organizational level and then at the national or inter-organizational level.

In DCT, coordination is seen as a distinct set of organizational and managerial processes (Eisenhardt & Martin, 2000). Other organizational processes, besides the static concept of coordination, are the dynamic concept of learning and the transformational concept of reconfiguration (Teece et al., 1997). If we analyze the evolution of government service delivery towards a more customer-oriented service delivery, the starting situation shows customers performing two basic coordination tasks; 1) identifying and finding the right services and 2) requesting them and monitoring the requested services. In the Netherlands, efforts at the moment focus on creating a nationwide portal, which requires greater organizational integration and a combined portal involving various government agencies. Individual organizations may still have own entry points and channels. Clearly-defined national legislative policies, managerial benchmarking, and academic or peer ranking of organizations' websites (ie. market-business model) provide the incentives that trigger organizations to move towards integrated service delivery (Janssen, Kuk, & Wagenaar, 2008).

At the moment, a digital safe is under development at the national level in the Netherlands, with the aim of facilitating the exchange of information between the various organizations. Although the services provided by the organizations involved are made available via this portal, citizens still have to find the right organization themselves. The Personalized Internet Portal (PIP) in the Netherlands is aimed to become a single portal to a large number of public organizations. The use of this portal in government organizations' websites represents a discontinuity with current practice and requires different capabilities from these organizations.

The single portal has still a strong focus on technology, while a next step requires a more fundamental change on the organizational level and capabilities need to be developed to enable this transformation. In this next stage, standardized and clearly defined chains will be created by integrating existing services into a single end-user service. Existing services have to be redesigned and end-user service requests should be translated into a number of service requests that are then sent to several organizations. A request results in a chain of activities. In order to reach this stage, organizations need to collaborate with each other and the capabilities for enabling this.

Ultimately, rather than customers having to look for the services they need, services are ideally recommended to customers proactively. Instead of having to request a service, people can specify what they need, after which the relevant procedures are put in motion. This requires major changes in service delivery and considerable transformational capabilities.

At the moment, government organizations start offering services in a single location, but customers still have to identify and find the services they need. In the final stage, even complex and unstructured requests addressing a large number of government organizations can be answered. Furthermore, customers only have to specify their needs (instead of finding and

selecting services) or register an event or a change in their status. This final stage is really customer-driven, joined-up government, in which the original chain of activities has been reversed. However, this requires capabilities to create high levels of interoperability and flexibility to provide customized processes crossing organizations and departments. Some organizations do not have the appropriate services or the necessary resources to develop the capabilities necessary for this final stage, and even if they do, achieving this stage will prove to be a major organizational and technological challenge.

Stage model

The goal of the stage model is to improve service delivery stage by stage. Higher levels of customer orientation require higher levels of flexibility, because a unique business process can be required for each request, crossing many organizations and departments. Demand and customer-driven service delivery processes may be unique and hard to determine beforehand, since governments do not always know what citizens want from e-government (Bertot & Jaeger, 2008). Fulfilment requires modifications to execute these unique processes aimed at satisfying this less foreseeable demand. We connect the various stages of service delivery in two dimensions, namely the level of customer orientation and the level of flexibility, each ranging from low to high. Higher stages will be more difficult to achieve and require new capabilities. Especially when several organizations are involved, designing and executing joint processes and services becomes very difficult, because it means organizations have to give up some autonomy. Based on the interviews and subsequent expert meetings, we were able to identify following stages:

1. *Stovepipes*: Few applications, services or products are interconnected and information is not shared.

2. *Integrated organizations.* Service delivery and IT within organizations are integrated to create a one-stop shop at the organizational level. There are hardly any inter-organizational business models.
3. *Nationwide portal.* A nationwide portal is introduced to provide access to existing products, including a digital safe. The digital safe can be used to provide government organizations with access to information when their services and products are requested.
4. *Inter-organizational integration.* Clearly defined and standardized cross-agency services are bundled and integrated, and can be requested as virtually one service via the portal.
5. *Demand-driven, joined-up government.* Instead of citizens or businesses having to find and request services, the portal will search for the relevant services and make recommendations. The chain is reversed and becomes demand-driven rather than supply-driven.

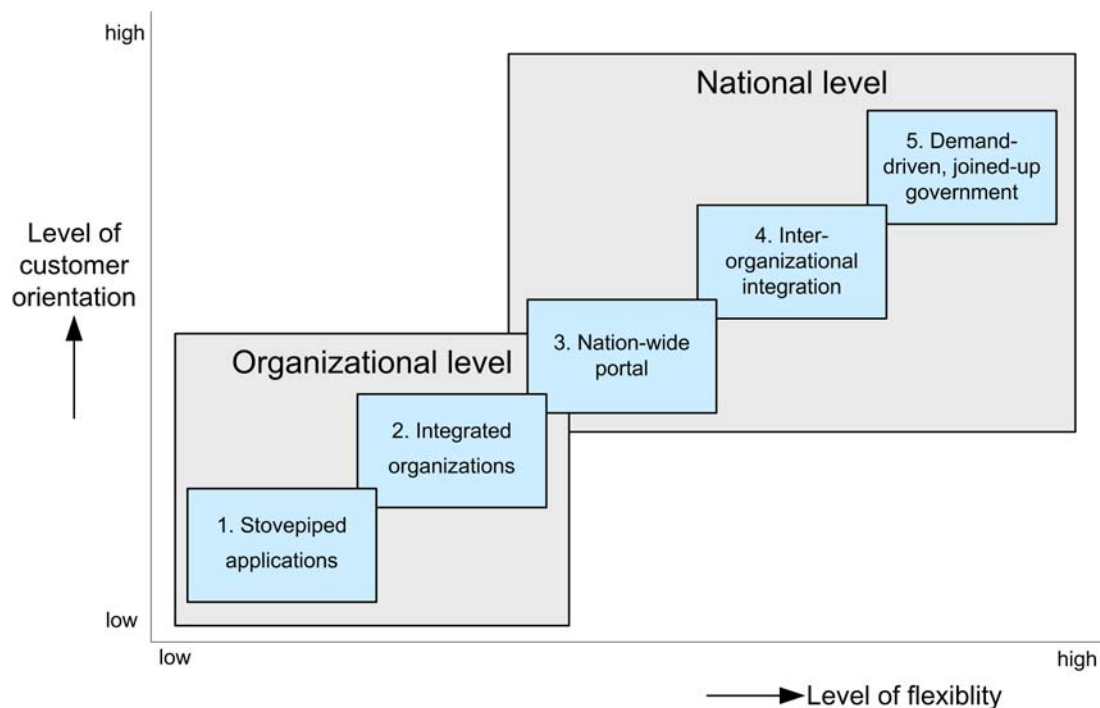


Figure 2: Growth stages

To explain the various stages, we use the example of a person who becomes unemployed. In each of the stages, this person will experience improved service provisioning. If he registers himself as unemployed, he has a number of rights and obligations. He may be eligible for social security benefits, but has to apply for job openings in return. Organizations that typically are involved in this process are the unemployment agency, a so-called reintegration agency, intermediaries, the tax authorities and the municipality (depending, of course, on the country's governance structure and relevant procedures). The interactions between the user and government organizations are indicated by document pictures in the figures. We come back to this example when discussing the various stages, both from the unemployed person's perspective and from the organizations' perspective.

Stage 1 – Stovepipes: vertical integration, horizontal segregation

The first stage can best be typified as inflexible and based on monolithic systems. At the moment, many organizations have already transcended this stage. To carry out different tasks or processes, organizations use different systems that have been developed independently by different departments. In some cases, different departments store the same data in different applications. The systems involved are rarely connected or synchronized. In other words, the IT structure matches and supports a fragmented organization that consists of different departments, each with its own systems.

Government organizations tend to have a particularly fragmented organizational structure that reflects their bureaucratic history and their relatively high degree of autonomy. Within the organizations involved, various departments have their own tasks, which are supported by a technological infrastructure. Each (sub) organization has its own clients (citizens and

businesses). Every organization is an individual entity (rather than being an integral part of ‘the government’) and the various departments all ‘do their own thing’.

Customers are expected to find their way around this maze of government services. To begin with, they need to determine which service they require, and then they have to look for the organization or department that provides the service in question and contact that organization or department. Because each organization or department uses its own isolated application, customers are expected to provide the same information over and over again to what they perceive as essentially the same government.

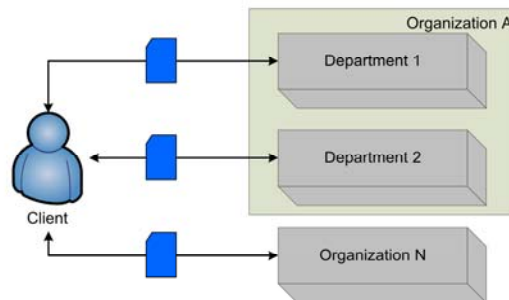


Figure 3: Stage 1 – stovepipes

In our example, the person who recently became unemployed has to take care of everything. First of all, he has to go to the municipality to obtain documentation that his address is correct, to the tax authorities to register his loss of income and to obtain documentation of his previous income. He then has to register as being unemployed at the unemployment agency (using the previously requested documentation), which creates a profile and checks whether he is

really without a job. He then has to hand over the profile and previous income data to another department of the same organization, where his social security benefits are calculated, after which he has to go to yet another department that will help him reintegrate into the job market. If and when he manages to find a new job, he is expected to get in touch with all these organizations all over again.

The primary capabilities required for this stage concern the design and development of applications used by the various organizations. Employees have only access to the information of their own department. Since no other government systems are accessible, the employee has to ask the client all information that is needed to assess his situation and sent him to the next desk for further service.

Stage 2 - Integrated organizations

Given the fragmentation of many government agencies, the next step is not yet to cooperate at a national level, but first to integrate processes within the organization itself. Integrating the processes and applications of various departments within the organizations is beneficial for two reasons. To begin with, it is difficult for customers to manage all the various (sub)processes and agencies involved in handling a service request. Secondly, integration leads to efficiency from an organizational point of view. Therefore, services should be integrated, at least within organizations. This calls for the orchestration of processes, technologies and information. Since many departments have a certain degree of autonomy, this requires an overarching customer strategy and IT architecture.

Many organizations are on the path towards a service-oriented architecture (SOA), which helps them interconnect the previously stove-piped applications. Although many organizations included in our study are still in the transition stage, implementing a service-oriented way of

thinking in organizational structure and applications helps make organizations and technologies ready for future stages. Organizations can present themselves as a single organization, with an integrated counter and (web) portal. This sets the stage for the next phase.

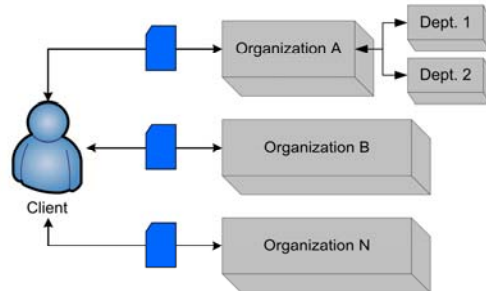


Figure 4: Stage 2 - integrated organizations

In the case of the recently unemployed person, this means that, although he still has to contact the various organizations himself, single agencies orchestrate their own databases, applications, processes and services. As a result, he has to make only one request at each organization and will receive one integrated response per organization involved.

In this stage, organizations need to create new capabilities to include the integration of systems, but also to create the commitment and culture necessary to transform the organization and to improve service delivery. The front office employee at the unemployment agency receives the service request of the unemployed person and orchestrates – aided by integrated information systems – the client’s service request in such a way that the client does not need to interact with the single departments within each agency.

Stage 3 – Nationwide portal

Once organizations have orchestrated their internal processes and systems, they can go one step further. As a result of the fragmented nature of government, citizens and businesses have to deal with many organizations. What is essentially a single process from a customer's perspective may involve various (government) organizations. Following the previous stage, many organizations are moving towards websites that facilitate interactions with clients and help clients identify their needs and make their requests. In the stage described here, they would combine these (online) services in a single (web) portal. The common denominator in the portal, from an organizational perspective, is the client and his or her situation and data. A personalized portal can facilitate the common case all the organizations involved are working on and the data required at the various organizations. From the clients' point of view, this creates a kind of one-stop shop by providing an overview of all their interactions with the many government organizations.

Governments that employ a shared government portal, like PIP, have reached the stage described here. However, this kind of portal only provides access to the various government organizations, which means that clients still need to orchestrate the services they request. Although the interactions have become more user-friendly, clients are still expected to interact with each organization on an individual basis, but this time using a single portal.

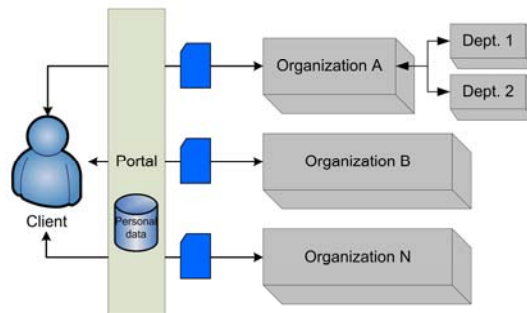


Figure 5: Stage 3 - cooperation with a single portal

In our illustrative example, the organizations have combined their efforts and created a personalized portal. The unemployed person can use the portal to request social security and apply for job openings. The portal contains some of his basic data, for instance his employment and income history and his correct address. This means that this information no longer has to be collected by each individual agency. The portal makes it possible for the relevant data to be retrieved electronically, and the unemployment agency can be sure that the information is genuine and correct. In addition, the man can use the profile in his quest for jobs offered by intermediaries, using the same portal.

The organizations involved in such a single portal need to adopt generic infrastructural facilities and, in turn, to provide their services in such a way that the services can be combined in the single portal. Organizations need to acquire new capabilities to facilitate collaboration and change the within-organization focus to an external orientation.

Stage 4 – inter-organizational integration

Although the single portal in stage 3 looks like integrated government, in reality it is just a layer covering the fragmented organizations behind it. Realizing integrated service delivery requires not only intra-organizational integration, but inter-organizational service integration as well. Service delivery processes do not stop at organizational boundaries, at least not as far as customers are concerned.

To focus on what customers need rather than what individual organizations have to offer, services should be leading, resulting in inter-organizational integration. This means that the organizations involved in a service-delivery chain need to work together. On the one hand, this implies that there has to be a will to work together and to jointly orchestrate the chain, while on the other hand requiring the creation of standards regarding things like data exchange, terminology and technologies. This requires the adaptation and adoption of yet other organizational and technical capabilities. Full integration means that customers file their requests at the start of the chain, after which the various organizations work together to provide the service in question. At the end of this process, one of the organizations provides an integrated answer.

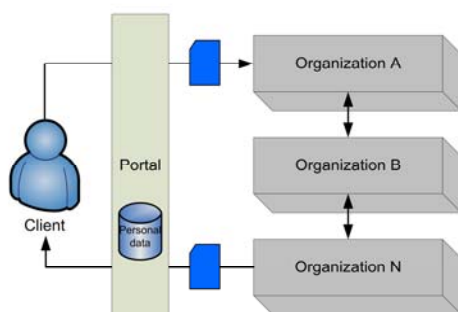


Figure 6: Stage 4 - cross-organizational process orchestration

In our example, the various processes involved in carrying out the customer's request are integrated in an overall process. In the case of people losing their jobs, this includes registration at job agencies. In addition, the unemployment agency forwards the customer's information to the tax authorities, informs intermediaries that the customer in question is looking for a job and hands over the case to a reintegration agency, which will contact the customer with a plan to help him find a job as soon as possible. This requires technologies that integrate *and* orchestrate the partial services at the various organizations, which can often only be accomplished by reengineering the various back offices. Furthermore, organizations need to develop relationship capabilities to collaborate with other organizations.

This type of solution scores high with regard to customer orientation, creating a 'single' virtual government organization. However, at the moment things are nowhere near this stage, nor are they politically and practically feasible. Organizations may not be willing to relinquish their autonomy and integrate their processes with other organizations. In addition, such a solution

would create a huge bureaucratic organization with additional layers of control and complexity, while failing to deliver the flexible, dynamic government that is required to create genuine demand-driven services. This has led us to the conclusion that there is an additional stage, beyond integrating chains in government service delivery.

Stage 5 – Demand-driven, joined-up government

We present a final stage that is customer-oriented and that requires high levels of flexibility. Rather than customers having to request individual products and services, they can make it clear what it is they need or services can be activated by an event. A (web) portal or application will then locate the relevant services and make a recommendation, after which customers can use the portal to request the services they require. The underlying vision is that the service location element is included in the demand-driven, joined-up e-government.

In a way, this is analogous to a shift from a supply chain towards a demand chain. After customers have specified their needs, a customized business processes will be created and orchestrated, which in turn may be modified, if and when that is necessary. Even though services may involve any number of government organizations, as far as the customers are concerned they are truly dealing with a joined-up government.

To reach this level, mechanisms have to be in place to manage and orchestrate service delivery across the entire government, and possibly even beyond. Private parties may provide elements of the overall service. In the case of social security, for example, both government organizations and insurance companies may be involved. Realizing this stage would represent a major shift from past stages and requires the dynamic capabilities to change fundamentally.

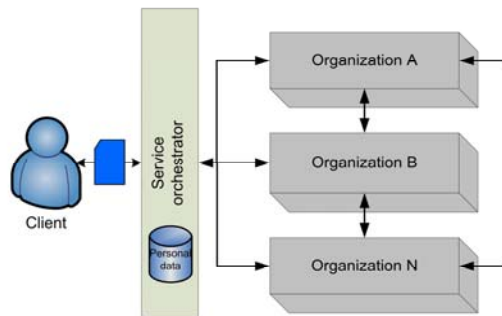


Figure 7: Stage 5 - joined-up government

If we return to the unemployed person, the recent change in his employment status needs to be communicated to all the relevant government organizations, after which the government takes care of the rest. For instance, if the tax authorities are informed by the man's former employer, this information is shared with all the other organizations. From the customer's point of view, it is no longer even a process, merely an event in his life that triggers all the appropriate actions. Government is almost invisible, except when citizens need to interact, and at the same time it is everywhere, keeping track of what needs to be done.

For the government organizations involved, this may require a fundamental transformation. Even private parties may be used as service delivery channels and organizations may form a service network in various coalitions, based on – for example – (life) events. The capabilities needed are all related to the transformation of government architecture, organizational structure and a culture of service delivery and collaboration.

Getting from one stage to the next: capabilities

Growth stages are useful for guiding and stimulating the developments of certain capabilities and systems aimed at enabling the migration from one stage to another. Within each stage, the capabilities and systems can be improved incrementally via relatively minor changes. The focus is on optimizing the existing way of working and on specializing capabilities further. Between the various stages, there is discontinuity and a need to develop new types of capabilities and systems. The focus is on developing new capabilities and new systems, as well as on realizing major steps. The new capabilities are often additional to the capabilities that were developed at previous stages, but might also substitute previously developed capabilities. Some capabilities necessary for accomplishing previous stages might become redundant in a next stage. The dynamic capabilities discussed here are identified in context of the stage model. More general capabilities, such as the continuous improvement of policies based on data (e.g. statistics), are also required for progressing e-government but are outside the scope of this research.

Table 1 shows the specific dynamic capabilities that government organizations need at every stage. From this table it becomes clear that, at each stage, different types of capabilities are required and the ones that are needed at a particular stage are not available from a previous stage. The basic idea is that before progress can be made from one stage to another, the necessary capabilities have to be developed first.

***** Table 1: Overview of capabilities per stage *** [Located at the end of this document]**

If we look at each of the stages and cluster the capabilities mentioned in the table, the following categories can be identified.

- 1) *Stakeholders*: Capabilities to maintain relationships, collaborate and interact with other stakeholders, in the first stages focused on the organizational level and in the later stages focused on the network level.
- 2) *Technology*: Capabilities to deal with the specific technology needed in each of the stages. Technology-related capabilities can generally speaking be defined as the ability to deploy technology swiftly and effectively in support of critical service improvement targets. This capability type is related to gaining access to new resources in order to be able to benefit from the technology. These types of capabilities alone are often not enough to benefit from technology, as technology and path-dependencies may reinforce existing structures and transformational capabilities are required.
- 3) *Transformation*: Capabilities to enable organizational change, which requires the management of projects or programmes to develop or integrate systems, leadership and change in culture.
- 4) *Service Delivery*: This set of capabilities is necessary for demand-driven service delivery (reconfiguration), such as ensuring availability and developing service levels. This capability is aimed at integrating resources into a service delivery process.

Within each of these categories the capabilities change with each stage. In the latest stages, the expectation is that not technology capabilities, but transformation capabilities in combination with relationship and service delivery capabilities will play a dominating role. This demonstrates a shift from technology capabilities as an enabler in the first stages towards other type of capabilities needed to realize demand-driven, joined-up government.

DISCUSSION

The aim of the stages presented in this paper is to create a roadmap to the future that can help policy-makers and decision-makers within organizations. The variable ‘customer orientation’ implies the ideal that true customer orientation will be accomplished in the future. The variable ‘level of flexibility’ shows that, in order to accomplish customer orientation, flexible, adaptive and responsive architectures are needed, both in organizational and technological terms. We have chosen these two variables because they refer to different dimensions: an external dimension (the customer) and a more internally focused dimension (flexibility). The two variables are interdependent, with customer orientation requiring flexible architectures. In spite of this correlation, the people involved preferred these variables, because they show the interdependencies between organizational readiness and customer orientation. They argued that this model could also be used to communicate with the political level with regard to what is possible and what is not yet feasible.

The model can be used by public managers to benchmark the position of their organizations within the national context and identify which capabilities are needed and how infrastructure facilities can help them in their progress. In addition, it should help set the conditions for the next stages and aid in policy development. Explorative interviews indicated that this model was useful for explaining to public managers that the creation of a one-stop shop within their organization was not the end, but rather the beginning of the creation of a nationwide portal. As such, it realized the objective of making public servants aware of future developments.

The model was presented to representatives of major government organizations in the Netherlands. Generally speaking, they agreed that some organizations in the Netherlands are progressing towards stage three, while many are still in stage two. Many organizations already

use the national authentication and identification facility, while more and more organizations are using e-forms. A pilot project has started with agencies using PIP. Although the people we interviewed liked the stage model, they expected that, from an organizational perspective, it would be very hard to realize stage four. Because there are many autonomous agencies, standardizing is difficult and integrating existing services into new ones will be even more difficult. Consequently, the interviewees wanted to investigate the possibilities of moving towards stage five and skipping stage four. Stage five offers the best opportunities in terms of bringing about genuine customer-oriented (and demand-driven) government. The interviewees argued that, if resources are going to be used, it would be better to spend them on realizing stage five than on realizing stage four first and then stage five. The feasibility of jumping straight to stage five needs to be investigated. The interview results show that it may not be necessary to go through all stages or even to reach the highest stage. This can vary per situation or per organization, for example organizations in developing countries may develop capabilities that relate to both stage two and three at the same time. Furthermore, some services or domains may allow for well defined cross-organizational processes and are likely to stay in stage four. The same context-specificity applies for the capabilities required for each stage. Some are additive (i.e. capabilities that are needed in earlier stages are also required for higher stages), some capabilities substitute earlier developed capabilities and some render earlier developed capabilities obsolete.

An added value of the presented stage model is that it can be used to determine what types of facilities are needed at a national level. Our research has resulted in a discussion about which types of functionality should be part of the PIP facility and which functionalities should not be a part of it. To accomplish stage three (cooperation with a single portal) the initial idea

was to identify all organizations and all their services, and include them in the portal. However, because it proved hard to determine the exact number of government organizations that exist in the Netherlands, this approach was considered unrealistic, and instead a more incremental approach was chosen, in which organizations could add their services to the portal. It is likely that the standardized services will be developed and provided as a separate facility, allowing organizations either to include their own services or to use the standardized service provided by the portal.

In the future, this model may be extended to include a more international (e.g. European Union) perspective, by modifying the existing stages or simply by adding a sixth stage covering customer-oriented, joined-up government at the EU level. The existing stages can be modified by viewing a joined-up government as a stage two organization and then progressing to the EU level, rather than the current national level. Each higher level of abstraction should probably reiterate stage three through five with the entities included at a lower level serving as integrated organizations. Further research may address this issue.

In addition, there may be political and legal hurdles that make it harder to move from one stage to the next. While the political and legal dimensions are interesting, they are outside the scope of this paper. They should, however, be included in future research and may be part of future interdisciplinary research that focuses on joining-up from political, legal, organizational and technical perspectives.

Our study shows that organizations need to be able to develop dynamic capabilities that will allow them to move to the next stage of transformation. In policy terms, this implies that within the various stages the focus should be on incremental improvement and refining capabilities, procedures and systems functioning, with an emphasis on improving existing

operations. At the same time, the transition towards the next development stage should be stimulated. The latter requires other ways of working and is focused on creating learning capabilities, stimulating innovation, developing new competencies and experimenting with new ideas and concepts. The capabilities required at the later stages are based on the insight provided by experts, without having any real-life cases to serve as references. Most of the developments in the Netherlands can be positioned in stage three and there are several initiatives aimed at developing capabilities to move towards the inter-organizational stage. As such, these capabilities can only be validated in the future.

CONCLUSION

In this paper we found that growth stages are useful for providing guidance and can be used by policy-makers to stimulate the developments of capabilities needed by organizations to migrate from one stage to another. We have derived a growth model based on the principle of discontinuity that consists of the following five stages: (1) stovepipes, (2) integrated organizations, (3) nationwide portal, (4) inter-organizational integration, and (5) customer-driven, joined-up government. The level of customer orientation increases with every stage, as does the level of flexibility. Flexibility is necessary, as demand-driven service delivery requires the creation of often unique business processes crossing multiple organizations and departments. One of the contributions of this paper has to do with the fact that it looks at the national perspective rather than that of individual organizations. Furthermore, we linked each stage of our model to the dynamic capabilities that are needed to realize that stage, and provide an example of each stage to indicate the relationship between infrastructural facilities and government agencies.

Although dynamic capabilities have been neglected by stage models literature, they can help demonstrate that stage models reinforce the technological bias pushed by organizations due

to path dependencies. On the basis of dynamic capability theory, we argue that an appropriate and timely development of the capabilities can improve transformation. In addition, we identified essential capabilities for each of the stages. There are four groups of essential capabilities: stakeholder, technology, transformation and service delivery. It is clear that each stage requires different types of capabilities, which is something that has not yet been examined yet. The capabilities we identified have been validated and we would advise policy-makers to start developing the capabilities required to move to the next stage in time. In practical terms, this paper adds to existing knowledge by (1) allowing organizations to benchmark their position, (2) looking at the capabilities and changes that are needed to realize the various stages and (3) identifying the types of facilities that are needed at the national level.

The development of stage models is an ongoing process that is influenced by technological developments, and stage models are likely to change over time. For further research, we suggest extending and refining the capabilities. In addition, it would be worthwhile to look at different ways to overcome discontinuity that takes place when moving from one stage to the next. Also, transformation and (re-)engineering approaches, methods and tools aimed at achieving joined-up government, as well as the corresponding need for resources should be further examined.

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aims to support integrated, demand-driven electronic services from public and private organizations to citizens and businesses.

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Table 1: Overview of capabilities per stage

Stage	Focus	Type	Capability name	Explanation of the capabilities
1. Stovepipes	Departments (within organization)	Technology	Information System development and design	The ability to develop and design information systems to support processes and products
2. Integrated organizations	Organization (integrating departments)	Technology	System Integration	The ability to integrate disparate systems
		Technology	System integration management	The ability to ensure business continuity, information quality and prevent data lost with networked system
		Stakeholder	Commitment and culture	The ability to create commitment of staff and a cooperative culture
		Stakeholder	Networking and relationship management (within organizations)	The ability to network and build sustainable (e.g. trust based) relationship management within organizations
		Transformation	System integration project management	The ability to execute projects to integrate systems
		Transformation	Enabling cooperation	The ability to overcome departmental differences and enable departments to cooperate to achieve a common goal
		Service delivery	Service management	The ability to combine difference resources and systems for integrated service provisioning within the organization
3. Nationwide portal	Multi-organizational	Technology	Develop generic facilities	The ability to develop and exploit generic facilities which provides the building blocks for online service provisioning (e.g. a central authentication facility)
		Technology	Domain expertise	Central organizations capability to apply and retain sufficient professional knowledge of the target process domain to meet user requirements
		Stakeholder	Integration Collaboration Agreements	The ability to integrate collaboration agreements with nationwide facilities
		Stakeholder	Motivation	The ability to motivate and manage people to deliver service with a 'front office' culture.
		Transformation	External orientation	The ability to shift from an internal focus to a focus on developments for using it in their own service provisioning
		Transformation	System project management	The ability to execute projects to integrate with central facilities
		Service delivery	Service and portfolio management	The ability to define service catalogues and portfolios

		Service delivery	Identify user requirements	The ability to gain insight into user requirements concerning the services the users want and how the services should be offered
4. Inter-organizational integration	Service delivery chain	Technology	Architecture: integration and coordination	The ability to coordinate and integrate central facilities and local developments in a complex architecture
		Transformation	Architecture development and improvement	The ability to improve the current systems to fit within the enterprise architecture (this goes beyond integration)
		Transformation	Planning	The ability to access resources required to create a plan for developing an integrated architecture
		Transformation	Sourcing	The ability to support government organizations to transform from a 'build here' approach to a 'use' approach
		Relationship	Service Level Agreements	The ability to develop service level agreements with other organizations
		Relationship	Central leadership	The ability to identify, communicate, and deliver the balance of activities required to achieve present and future success for both local and central governments
		Service delivery	Controlling and education	The ability to transition users of an internally provided service to customers who make informed choices about service level, functionality and the costs they incur
		Service delivery	Orchestration	The ability to orchestrate services provided by various parties into a single service end-user service
5. Demand-driven, joined-up government	Service network	Transformation	Reconfiguration and transformation architecture	The ability to reconfigure and transform resources and assets, and the ability to share (modular) services with other agencies
		Transformation	Leadership	The ability to overcome fragmentation and to achieve that (semi) autonomous organizations give up some of their own facilities
		Transformation	Program management	The ability to initiate, prioritize and coordinate the series of inter-related change projects that are required for transformation
		Relationship	Collaboration	The ability to collaborate closely with other organizations (public and private) to enable demand-driven service provisioning
		Service delivery	Orchestrate service delivery	The ability to manage and orchestrate service delivery across the entire government
		Service delivery	Service governance	The ability of government organizations to define, track and assess the performance of central services over time

