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### From government to e-government A transition model

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# **From Government to eGovernment: A Transition Model**

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## **From Government to eGovernment: A Transition Model**

### **Abstract**

**Paper Type:** Research Paper

**Purpose:** To develop a model that can explain the ‘Government to eGovernment’ transition process.

**Design:** Reviews the literature on and practice of eGovernment, as well as the related literature of strategic alignment and maturity models for technology adoption. Offers evidence for the model’s validity through case-type material from the web sites of eGovernments worldwide.

**Findings:** Six transition paths can be identified, four of which are more likely to result in effective eGovernment transition.

**Research Limitations:** Further work is needed to test the validity of the model. This could involve historical and longitudinal studies of the Government to eGovernment transition process in different governments around the world.

**Practical Implications:** The transition model should be of value to eGovernment strategic planners who are seeking possible transition paths towards the effective development of eGovernment.

**Originality/Value:** The paper tackles the little investigated topic of the transition process through which governments must go as they shift from traditional government to e-Government.

**Keywords:** eGovernment; transition model; strategic alignment.

## **1 Introduction**

Since the development of the world wide web, considerable attention has been focused on the adaptation of web-based technologies to the business environment, notably in the Business to Business (B2B) and Business to Consumer (B2C) sectors. More recently, new sectors have been gaining attention, including those that involve government, such as Government to Business (G2B) and Government to Citizen (G2C). It is perhaps not surprising that governments (whether, local, regional, national or even supranational) have been slower to clamber onto the web-enabled bandwagon: governments are traditionally more conservative entities, slower to change, and slower to adopt new initiatives, than operators in the commercial field (cf. Marche and McNiven, 2003). Indeed, it is reasonable to query whether governments really want to make the transition to eGovernment. Nevertheless, a considerable eGovernment movement is now building, with a number of national governments taking extensive measures to engage in radical transformation of their portfolios. Some commentators (e.g. Criado and Ramilo, 2003) go so far as to describe this move as being little short of a revolution in the public sector, though such statements are as notable for their hyperbole and rhetorical intentions as for their representation of reality.

In this paper, we outline and illustrate a transition model for the Government to eGovernment process. The intention is that this model will serve as a guide for governments to better understand their own motivation towards the concept of eGovernment and to avoid potential problems during this transition. The model will also allow us to identify several unique cases of eGovernment. The paper first documents the rise of eGovernment from earlier initiatives that involved the reinvention of government, through what has come to be termed ‘new public management’, as well as contemporary studies of how eGovernment is practiced in a variety of communities worldwide. We then introduce three models of eGovernment maturity (Accenture, 2003; Chen, 2002; Hodgkinson, 2002) as well as the

strategic alignment model of Henderson and Venkatraman (1993). From these various sources, as well as the literature reviewed previously, we develop an integrative model to explain the government to eGovernment transition process. This model is then illustrated with a number of country examples of how eGovernment is practiced worldwide. Finally, we discuss the practical and theoretical implications of the model and conclude the paper.

## **2 Background and Literature Review**

While studies of eGovernment are restricted to the web-era, and indeed primarily to the last few years, there is a longer standing literature on new public management (Bevir et al., 2003) and the reinvention of government that in many ways lays the groundwork for the eGovernment initiatives that were to follow. Osborne and Gaebler (1992), for instance, proposed that citizens should be regarded and treated as customers, suggesting that the delivery of government services should be redesigned with a customer focus. This view is challenged by Mintzberg (1996), who usefully distinguishes customers from clients, citizens and subjects. He points out that you don't have to call someone a customer in order to treat them well or ensure that services are designed with them in mind. Customers buy products, clients buy services, but citizens have rights "that go far beyond those of customers or even clients" (Mintzberg, 1996, p.77). Furthermore, citizens not only have rights, but also duties – as subjects: to pay taxes, to be drafted in armies and to respect laws (or suffer the consequences). To suggest that citizens are equivalent to and should be treated as customers not only grossly oversimplifies the nature of the relationship between government and citizen, but it perverts it (cf. Ciborra, 2003). This does not mean that there is no need to reinvent government, but it does limit the extent to which the nomenclature of B2C relationships parallels that of G2C relationships.

This literature review is organised into four sub-sections. First we consider the traditional form of government before identifying the opportunities that eGovernment has the potential to bring. Next, we discuss a number of barriers associated with the initiation of the eGovernment implementation process. Finally we describe what good eGovernment is likely to look like – for both the citizen and the government itself. This incorporates notions of government transformation, as well as a citizen-centric eGovernment policy. This sets the scene for section three of the paper where we consider the strategic transformation process that leads to eGovernment.

## **2.1 Traditional Government**

“The stereotypical image of a Government is of a slow-moving bureaucracy, unwilling or unable to change and years behind other industry sectors in its use of new technology and new business models” (Accenture, 2000a). In this model, citizens and businesses engage with government in many areas creating vast amounts of paperwork – an inconvenient and confusing process. Stereotypes are by nature unspecific; there are always exceptions. Yet the image here is one that will be familiar to many citizens who do not have access to an eGovernment.

## **2.2 The Opportunities of eGovernment**

Early adopters of web-enabled technology applications tended to automate existing business processes, with little redesign or innovation. Typical approaches involved automation of the front-end web presence so as to spark ecommerce activity, but failed to integrate and redesign the business as a whole in order to make it truly web-centric. The same was true of early eGovernment initiatives – there was a scramble to get as many services or webpages up with little regard to quality, service level or appropriateness for the citizenship. However, as Burn

and Robins (2003, p.26) observe “eGovernment is not just about putting forms and services online. It provides the opportunity to rethink how the government provides services and how it links them in a way that is tailored to the users’ needs”. This rethinking must necessarily include disavowal of the “build it and they will use it” mentality that infiltrates much web-enabled thinking. The failure of many dot-coms to garner business, and indeed the proverbial failure of the horse to drink the water proffered, should alert governments to the risk that eGovernment initiatives may also go hideously wrong. Consequently, “government must develop a far more sophisticated view of the people it is there to serve and devolve real power ... as an integral part of its approach to eGovernment and provide more freedom of information” (Burn and Robins, 2003). If the governments can achieve this radical new conception of their role, then there is the potential for eGovernment to transform “not only the way in which most public services are delivered, but also the fundamental relationship between government and citizen” (Symonds, 2000, p.S3). This implies, of course, not only eGovernment but also eGovernance – if real power is really to be devolved to citizens. There are many opportunities for eGovernment applications, whether they involve the provision of information, handling complaints and queries electronically, processing applications for permits/licences electronically, paying taxes, duties, fees electronically.

### **2.3 Barriers to eGovernment Implementation**

The sense that governments are in fact ill-prepared for these opportunities is made by Marche and McNiven (2003, p.75) who note that “public administration has a general reputation for functional insularity ... the tendency to not integrate service provisioning across government departments when responding to citizens’ needs”. It is suggested that the cause of this functional insularity is intrinsically associated with “deeply entrenched practices and cultures” (ibid.), as well as the inherent difficulties associated with integrating operational



procedures and information systems, which may not be computer-based, among individual government agencies, departments and bureaux (cf. Ciborra, 2003). Specific barriers associated with the eGovernment initialisation process are many, including issues of citizen privacy and security, inadequately skilled citizens and government employees, and the tendency for eGovernment to replicate traditional government, i.e. perpetuating the functional insularity (Marche and McNiven, 2003). Finally there is the issue of access: the digital divide between the haves and have-nots in society is still a huge one, and sadly many of the people who might stand to gain most from eGovernment are the least connected, least educated, and least aware of how to do so (cf. Accenture 2001).

#### **2.4 Characteristics of Good eGovernment**

The government to eGovernment transition process offers governments a unique opportunity to enhance not only their operational transparency, clarity of purpose and responsiveness to citizens (Marche and McNiven, 2003), but also their own internal efficiency and effectiveness, important concerns in times of economic downturn and increasing public pressure for internal accountability. However, achieving transparency requires significant “internal process redesign that hides the internal complexity of transactions” (Marche and McNiven, 2003, p.76) from citizens who really don’t care which department provides a particular service, or who they are paying, so long as they can get it. This transparency is likely to increase citizen empowerment – they will be able to access information of their own choosing, rather than merely accepting whatever explanation is provided (if any) by the (in)competent authorities (cf. Slevin, 2000).

There are both similarities and differences between .com and .gov, both of which bear closer attention. Individual B2C customers will have a general experience of the 24\*7 world where they can do anything, anytime and anywhere. As citizens, it is likely that they will

expect a similar level of service from eGovernment – a one-stop shop service that is simple and capable of personalisation (cf. Thong et al., 2000). Achieving such a service requires changes in the way government functions: it needs significant inter-departmental cooperation. Citizens are more likely to develop loyalty towards those eGovernment portals that are citizen-centric, that are designed to address their needs. The Australian [Centrelink.gov.au](http://Centrelink.gov.au) is a good example of an early portal that did integrate across agencies within government.

A key difference between eGovernment and eBusiness concerns loyalty. EBusinesses have tried to develop customer loyalty with customer relationship management (CRM) so as to encourage customers to return time and again to buy their services or products. So long as customers need to buy, they may indeed return. However, with eGovernment, loyalty is rather different. eGovernments should encourage digital loyalty, i.e. the preference of citizens to use digital services over other forms, e.g. counter, mail, fax, telephone, since digital services should be much cheaper to provide. Yet at the same time, since governments by definition operate as a monopoly, they may perceive that they don't need to spend extra effort to compete with other providers. That said, some government services such as the Post Office (not a government service in all countries) may well face private sector competition in the form of courier and parcel delivery firms, so it is unwise to assume absolute monopoly status.

At a higher level, a government can also be considered to be in competition (e.g. for investment or human resources) with neighbouring governments, whether in nearby cities, regions or countries. In this sense, Singapore and Hong Kong compete with each other for international business; the quality and extent of their eGovernment services are part of the competitive environment. Nevertheless, eGovernment services should be designed so as to help citizens get in, find their information or transact their business, and then get out as efficiently as possible. It is useful here to refer to 'stickiness'. In an eBusiness context, 'stickiness' suggests keeping a customer on a website as long as possible, in the hope that the

customer will buy something. In consequence, websites are often designed to be maximally sticky. In contrast, few eGovernment websites need such levels of adhesiveness! In most cases, it is more appropriate that the citizen can easily access the service, complete a transaction, and get out. This suggests that optimal stickiness rather than maximal stickiness is desirable.

### **3. Strategic Transformation to eGovernment**

#### **3.1 eGovernment Maturity Models**

Accenture started its annual surveys of eGovernment development in 2000, characterizing eGovernment progression via a multi-stage ‘publish, interact, transact’ model (e.g. Accenture, 2000b, 2001). Later, the model was extended to incorporate the notion of the *transformation* of government – redesigning processes so as to put the citizen at the centre (Accenture, 2002). This transformation involves structural and cultural change within government. In 2003, the model was further revised to five stages: Online Presence, Basic Capability, Service Availability, Mature Delivery, and Service Transformation. Considering the transitions between stages, Accenture (2003) commented “we find that at the start of each stage countries make large steps and, often, rapid development. As each plateau is approached, the barriers to further progress become apparent and the rate of development slows”. In moving to the highest stage of eGovernment (Service Transformation), Canada demonstrated its ability to apply leading edge practices, such as involving customers in service development and identifying/focusing on high value services.

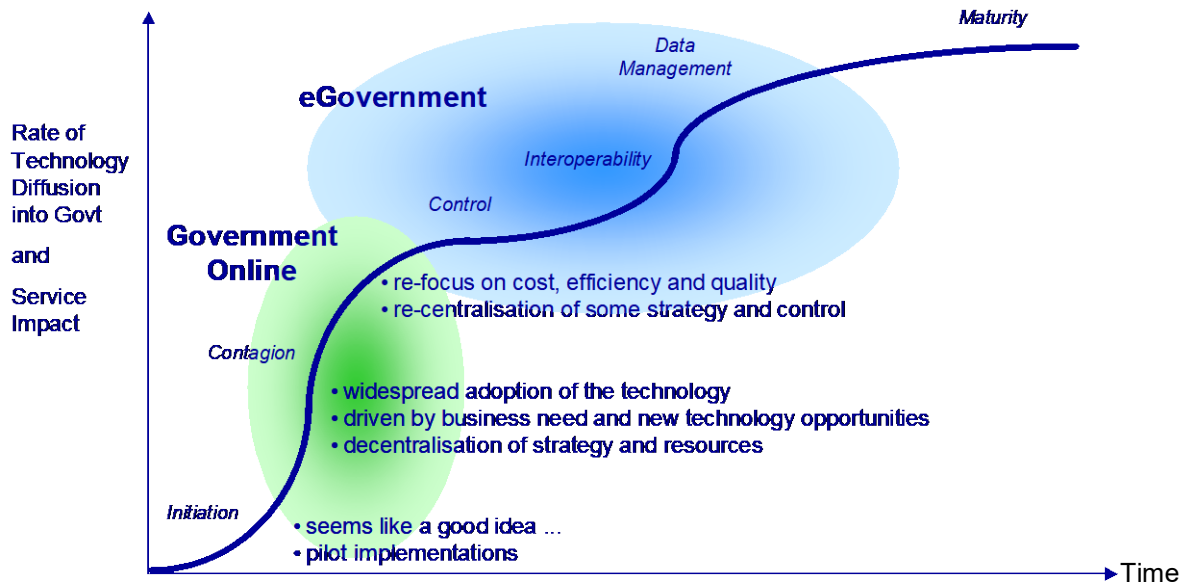
A similar staged development model was articulated by Chen (2002), who argues that eGovernment delivers its content and services through the continuum of the four levels of interaction: (i) by enabling information search by citizens via the Internet; (ii) by evolving into providers of two-way communication services such as simple groupware functionalities

like web forms, e-mail and bulletin boards; (iii) by facilitating transaction services for businesses and citizens; and then (iv) by transforming practices and services from government to the agents and the community (e.g. e-voting or opinion poll). He further argues that most eGovernment initiatives are moving upwards in the continuum.

Both these development models focus on the service delivery or “e-commerce” side. However, another transformation model (Hodgkinson, 2002) suggests that eGovernment progresses through a learning curve for its backend (e-business) activities, similar to the learning curve of data processing maturity of a six-stage growth model proposed by Nolan (1979). While these staged models tend to help identify ‘where you are’, they usually fail to ‘guide you to the next stage’. This requires a more comprehensive maturity model such as the Galliers and Sutherland’s (1991) six stage model (Adhocracy, Starting the foundations, Centralised dictatorship, Democratic dialectic and cooperation, Entrepreneurship opportunity and Integrated harmonious relationships) which associates the characteristics of each of the stages with the seven “S” framework (Strategy, Structure, Systems, Staff, Style, Skills and Super-ordinate goals). Similarly, the Strategic Alignment Maturity matrix proposed by Luftman (2000) consists of five conceptual levels (Initial, Committed process, Established focused process, Improved/managed process and Optimized process) and six IT Business Alignment Maturity criteria (Communication, Competency/value measurement, Governance, Partnership, Scope and Architecture & Skills). As Hodgkinson (2002) observes, and as depicted in Figure 1, governments will have to develop this capability by maturing through a learning curve which resembles repeated S-curves (one S-curve for each learning cycle). According to Hodgkinson (2002), interoperability, which is required for inter- and intra-departmental sharing and a common interface to citizens, will precede data management (and therefore knowledge management). Nevertheless, reports from various knowledge management initiatives suggest that islands of automation can exist long after databases have

been established within the various agencies, and that cultural issues will hinder interoperability long after technological interoperability has become feasible.

Figure 1: IT in Government Maturity Curve (Hodgkinson, 2002)



In the end, mature eGovernment is characterized by high levels of capability and performance on multiple dimensions. Performance dimensions include the government’s ability to offer the vast maturity of suitable services with an e-delivery option, and a large number of citizens and organizations making use of them. Capabilities include the ability to share data and information across government units, reduce process times through workflow and ERP systems, and the ability to capture and share knowledge of government employees. It also includes the ability to assess performance, through monitoring systems such as a balanced scorecard (cf. Martinsons et al., 1999).

A mature eGovernment will also differ from a less mature one in other areas, such as IT management by senior CIOs, an effective management structure, regular planning and reengineering activities to determine areas for improvement and making the changes to capitalize on the improvement potential, and by an IT (ICT) architecture that fosters

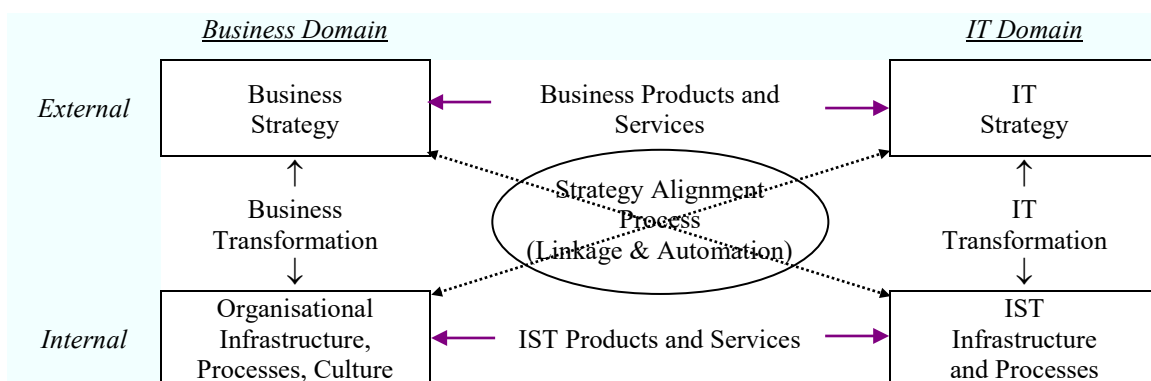
integration, enables government-wide standardization, and offers the above mentioned performance.

### 3.2 Strategic Alignment

In order to explain the interaction between business strategy, information strategy, and corresponding business and IT structures, Henderson and Venkatraman (1993) proposed a model of strategic alignment. This model, as illustrated in Figure 2, presents four domains of strategic alignment, as applied to corporate strategy:

- a) Business Strategy refers to the broad choices pertaining to the positioning of the business in the competitive product-market arena.
- b) Organisational Infrastructure, Processes, and Culture refers to the choices pertaining to the particular internal arrangements and configurations that support the organisation's chosen position in the market.
- c) IT strategy refers to broad choices related to information technology scope, systemic competencies and IT governance.
- d) IS infrastructure and processes refers to the choices pertaining to the internal arrangements and configurations that determine the data, applications and technology infrastructure to deliver the required IT products and services.

Figure 2: Strategic Alignment Model (Henderson and Venkatraman, 1993)



The strategic alignment model is used to explain the interdependence of IS and business strategies and the strategic "alignment" between business and IS as well as the "impact" of information systems & technology (IST) driven opportunities.

Strategic Fit reflects the alignment between external and internal domains that is represented by either business transformation or technology transformation. Strategic Integration is the link between the external components, i.e. business and technology strategy domains, while Operational Integration is the link between the internal components (i.e. Organisational Infrastructure & Processes and IST Infrastructure & Processes). Cross Domain Alignment involves the relationships along the two diagonals of the matrix, that is: (a) between Business Strategy and IST Infrastructure & Processes, and (b) between IT Strategy and Organisational Infrastructure & Processes. One of the fundamental insights of the strategic alignment model is that the successful implementation of strategy requires the alignment of all four domains.

#### **4. Integrative Model for the Government to eGovernment Transition**

##### **4.1 eGovernment Alignment Model**

In order to explain the progression from government to eGovernment more precisely, we propose an integrated model of strategic transformation that combines the insights of both the maturity and the strategic alignment models. The model domains and their interactions are depicted in Figure 3. Table 1, below, translates the domains of the alignment model into corresponding eGovernment domains.

Figure 3: Strategic Alignment for eGovernment  
(based on Henderson and Venkatraman, 1993)

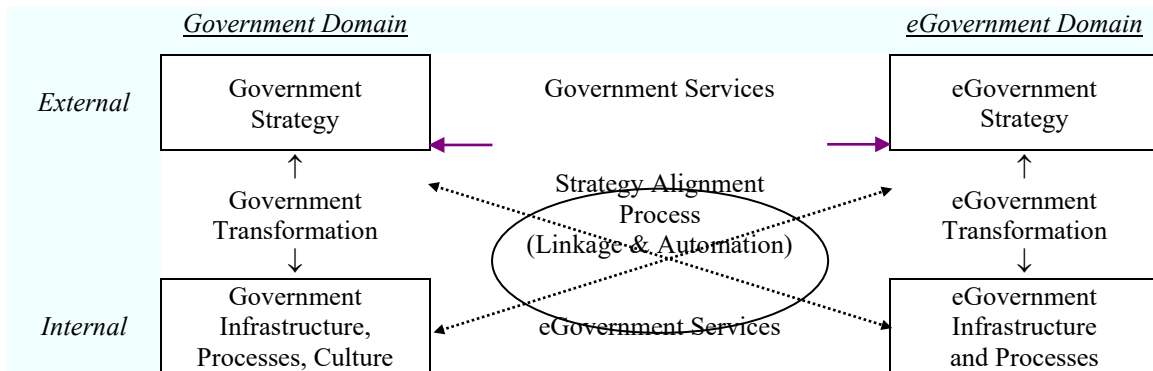


Table 1: Strategic Alignment Model Domains for eGovernment

Strategic Alignment Model in Business Organizations	Adapted Strategic Alignment Model for Analyzing Government Organizations
Business Strategy	Government Strategy refers to broad choices pertaining to the positioning of government.
Organisational Infrastructure, Processes, Culture	Government infrastructure and processes refers to the choices pertaining to the particular internal arrangements and configurations that support the government's chosen position, together with the reflected government culture.
IT Strategy	eGovernment Strategy refers to broad choices pertaining to IT scope, systemic capabilities, and IT governance.
IST Infrastructure and Processes	eGovernment infrastructure and processes refers to the choices pertaining to the internal arrangements and configurations that determine the data, applications and technology infrastructure used to deliver the required eGovernment services.

We equate government strategy with business strategy, although there clearly are differences. Government strategies are defined less in relationship to a competitive marketplace, but instead have to take into account issues such as legitimacy with citizens. Nevertheless, since both corporate and government strategy require high level planning and decision making, the same basic decision making principles apply. Furthermore, both



corporate and government strategy have to deal with issues of alignment of objectives between the highest levels (of government or corporation) and other units (business units or other government and civil service organizations).

Strategic Fit in government is the alignment between external and internal domains that is represented by either Government Transformation or eGovernment Transformation. While Strategic Integration in Government is the link between the external components, i.e. Government Strategy and eGovernment Strategy domains, Operational Integration is the link between the internal components (i.e. Government Infrastructure & Processes and eGovernment Infrastructure & Processes). Cross Domain Alignment involves the relationships along the two diagonals of the matrix, that is: (a) between Government Strategy and eGovernment Infrastructure & Processes, and (b) between eGovernment Strategy and Government Infrastructure & Processes.

#### **4.2 Alignment-based Maturity Model**

In order to illustrate the complexities of eGovernment evolution, we have developed a multi-stage model (Figure 4). This model has been developed out of the work of Henderson and Venkatraman (1993), Hodgkinson (2002), Nolan (1979) and Chen (2002). In the spirit of Nolan's (1979) model, it is designed to be descriptive and indicative: it can be used to describe or illustrate the current position of an eGovernment with respect to other eGovernments. It can also be used to indicate how further eGovernment developments may follow from the current position. Nevertheless, it is not an operational model. It does not provide precise guidance as to how a government should develop web-enabled services, engage the citizen or transform itself.

The model depicts a set of alignment or un-alignment scenarios, and the transitions between them. Each scenario is identified by a square with one small box in each of the four

corners (representing Government strategy, eGovernment strategy, eGovernment structure and Government structure, respectively) – a stylised representation of the model shown in Figure 3. Areas of active planning and implementation are shown as darkened boxes, while as yet unmanaged or unaligned areas are shown as unfilled boxes. Single-headed arrows between scenarios identify transition paths. The model outlines several possible development paths, each tracing the evolution of eGovernment from stage to stage. Alignment is depicted by double-headed solid arrows between darkened boxes. An alignment gap is shown as a dotted line with a two-headed arrow. The solid lines between stages (e.g. from 2a to 3a) indicate a preferred or likely transitional path; the dotted lines between stages (e.g. 2a to 3b) indicate a less preferred or less likely transition path.

Different governments will not necessarily take the same path towards eGovernment transformation, but will emphasize different domains of the model in their progression. Indeed, some governments may never achieve comprehensive eGovernment maturity (along all dimensions), as governments will have to determine their own equilibrium between the benefits of additional service provision and cost of eGovernment. Different levels of maturity may, moreover, be achieved in different government departments, with some far ahead of others. Figure 4 shows, as the starting point for eGovernment transformation, a rhetorical stage (all four boxes unshaded), where little is likely to exist in terms of planning or implementation, other than public statements of intent and the identification of a project champion, though there may be a basic web site that provides static information or acts as a place holder for future content.

Following the rhetorical intention to move towards eGovernment, the second stage illustrates how governments may either engage in strategic planning or may simply start implementing web-based systems, services, or information sites. Strategically focused governments, or those advised by strategic consultants, may wish to engage in the

formulation of a strategic vision (2a). Governments where the eGovernment initiatives are led by senior IT planners may see their CIO formulate an eGovernment vision (2b). Conversely, a more operationally focused government may begin with the implementation of simple eGovernment technologies (2c) before formulating any plans, so that strategy follows the new structures. These systems may be as simple as web pages that disseminate information (i.e. little beyond the rhetoric stage), or they may be more complex entities with interactive opportunities for citizens.

Stage 2 leaves out a planning scenario that begins with a change in the operational structures of government (lower left box), prior to any other eGovernment activity. Such an approach would equate to trying to change government culture before anything else. Attempting this would be highly risky and of little value, as it requires culture and value changes in government without a plan, and without any immediate, demonstrable benefits in eGovernment service provision. Hence, while this transition path is conceptually possible, it is extremely unlikely to be pursued (we did not find any evidence of such a transition), and therefore will not be considered further here.

In general, one might view the relationship between structure changes and culture changes as a “chicken-and-egg” problem, implying that both have to be co-developed. Yet it is easier to envision broad structural changes (i.e., technology changes), followed by changes in culture, than the reverse. Among the few documented cases for a culture change leading structure changes is the Singapore Housing Development Board (HDB) (Thong et al., 2000), which underwent a re-engineering effort, brought about by a culture change among a small group of HDB managers. Yet the lesson of that particular case was to initiate the culture change through a pilot project, to turn project leaders into “heroes”, and thus to provide a compelling case for others to adopt the “new culture”.

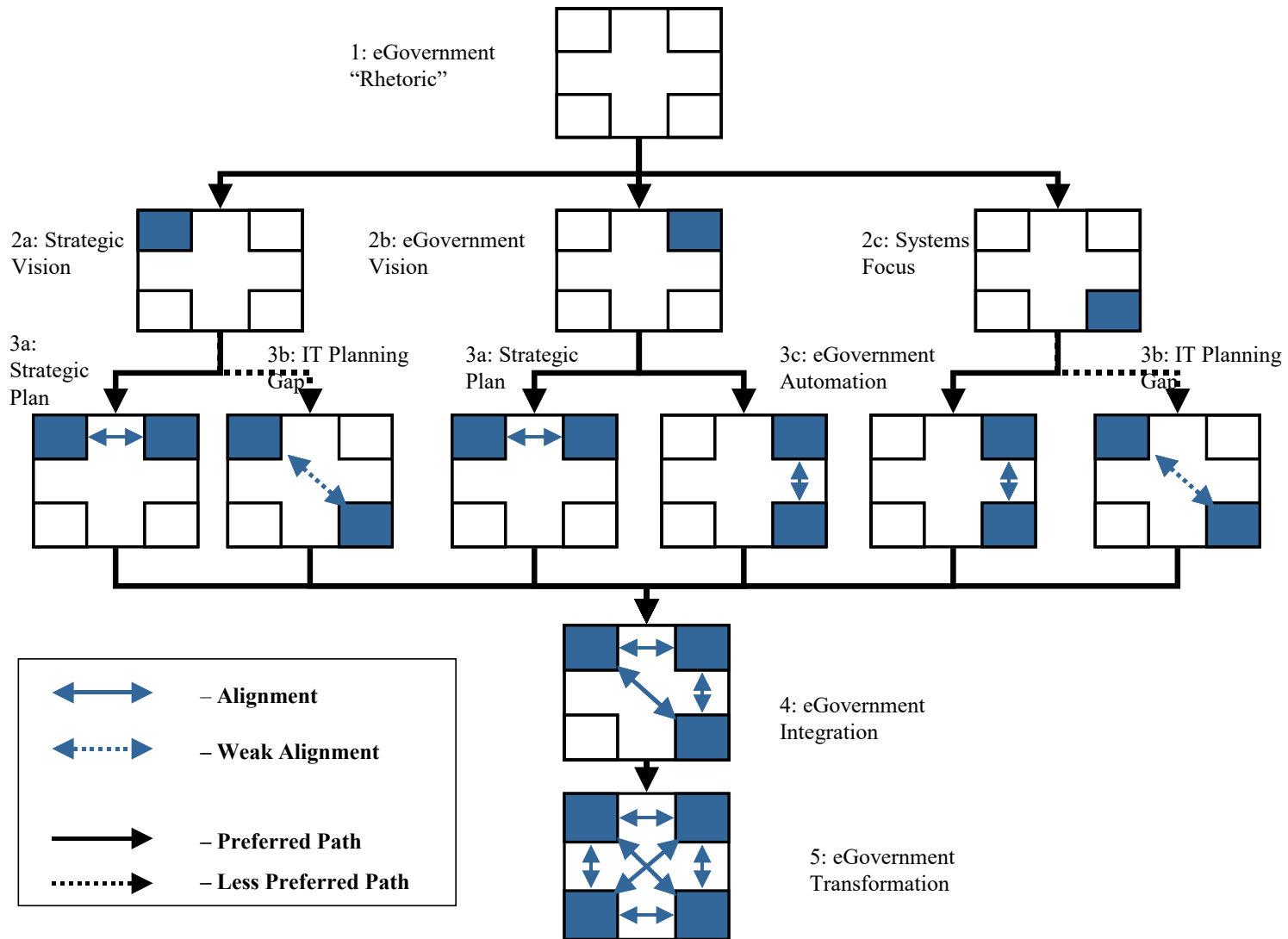


Figure 4: Alignment-based Maturity Model of eGovernment

Moving to stage 3, we observe the potential for some integration between planning tasks or between planning and action. Strategy focused governments may first seek to formulate an aligned plan that integrates government and eGovernment strategies (3a). This is an ideal development path, though in practice it is unlikely to occur in the complete absence of some physical systems: few governments can resist the temptation to start putting services online at an early stage so as to provide services to their citizens and thus produce tangible outcomes. A less desirable scenario is strategic planning paired with IT implementation, but without IT (eGovernment) planning. When such a planning gap (3b) exists, we should expect little alignment between government goals and the actual implementation of eGovernment, resulting in mismanaged application development. Another path involves IT taking a leadership role (3c), with alignment between eGovernment strategy and implementation, leading to 'eGovernment automation'.

As a further development, which we term 'eGovernment Integration' (4), we expect government strategy, eGovernment strategy and eGovernment systems to be aligned, together with integration of services, strong linkages between front- and backend systems, and some level of intra-departmental collaboration. Governments that start off their eGovernment initiatives simply by building systems, however, are likely to experience considerable difficulty in reaching this stage.

The final stage, transformation (5), is expected to achieve full eGovernment alignment by transforming government processes and systems, including reward systems. At this stage, we would expect that the government and civil service activities are radically changed, that roles are redefined, including the roles of citizens.

It should be apparent that the transition model does not present all possible development paths for eGovernment. The lower left box, corresponding to transformational changes in government, is only filled in the final stage of eGovernment development.

Certainly it would be possible for this to occur earlier, even first of all, but this would not be part of the eGovernment transition process, but a transformation of traditional government. We suggest that in an eGovernment context, effective transformation is likely to be stimulated by, and therefore to follow, a coherent strategic plan and deployed eGovernment systems that mandate the sharing of knowledge between government departments, businesses and citizens.

While the model proposed here is a hypothetical one, it is based on the study of several eGovernment transitions. We can identify governments positioned at different stages of the model, exhibiting various patterns of alignment. It should be pointed out that while such ‘stages’ are intended to be helpful in terms of understanding the overall eGovernment transition process, eGovernments may move from one stage to the next in an irregular fashion, with one department leading others (see for example Malawi in 4.3.3 below). Thus, an eGovernment initiative may include some aspects of each of the five stages in the model. Which path should governments pursue? This depends largely on their starting point, their resources, and their constraints. Table 2 summarizes three typical paths together with advantages and disadvantages.

*Table 2: Typical eGovernment Transition Paths*

Transition Model	Path	Advantages	Disadvantages
Strategically Aligned	1-2a-3a-4-(5)	Plan before action, strategy driving IT implementation, reduced chance of misalignment	Long delay in demonstrable benefits, little experimentation can result in failure at operational levels, significant management insight required.
IT Takes Leadership	1-2b-3c-4-(5)	Technically well planned eGovernment applications, less affected by vision drift of political planners	Lack of alignment with government / political goals, lack of buy-in from stakeholders.
Operationally Driven	1-2c-3c-4-(5)	Immediate show pieces and demonstrable ‘success’ cases. Puts governments ‘on the map’.	Vulnerable to strategic mismatch and need to re-develop applications, lack of buy-in from stakeholders.

### 4.3 eGovernment Examples

In this section, the positions reached by a number of different governments on their paths towards full transformation to eGovernment are exemplified. We use eight cases to illustrate our arguments. Cases were chosen for their ability to reflect different positions on the path to mature eGovernment. As might be expected, governments do not fall clearly into one stage or another, hence we categorize them according to their most obvious characteristic. For example, North Korea, which we characterize as being at the “Rhetoric Stage”, could be argued to be beyond this level, given limited information dissemination as well as a small number of working links to relevant organisations such as the Korean Central News Agency. However, we view the existing pages simply as a demonstration of the eGovernment rhetoric, essentially a claim that North Korea has achieved a basic level of eGovernment. We do not have any examples of the ideal ‘Strategic Vision’ and ‘Strategic Plan’ stages, for the simple reason that evidence about such eGovernment positions is extremely hard to obtain. It will not, by definition, be visible on the web. Rather, it would need to be described in a case study, or else obtained via an intimate knowledge of the functioning of a specific government.

#### 4.3.1. *eGovernment Rhetoric: North Korea*

North Korea has essentially no eGovernment presence. There is no on-line information about its eGovernment activities. Although West (2002) rates North Korea with a score of 24.0, higher than many other e-governments (e.g., Dominica 12.0), North Korea does not appear to have an official government web page, nor do more than an extremely small percentage of the population have Internet access (Koo, 2004). The page that does exist – <http://www.korea-dpr.com> - offers nothing in the way of information about government, restricting itself to photos of the current and former presidents, and a limited amount of

information about the political system of North Korea, tourism, history, as well as links to various websites associated with North Korea.

#### *4.3.2 eGovernment Vision: Hong Kong (1998)*

The strategy of the Government of the Hong Kong Special Administrative Region (HKSAR) involves maintaining Hong Kong's competitive position in the global market as a leading international financial and business centre. Its corresponding IT direction is to keep Hong Kong in the forefront of IT development. The Information Technology and Broadcasting Bureau (ITBB) was setup within the HKSAR in April 1998 with the aim of leading and coordinating the work of all those in government involved in IT and the related areas (HKSAR, 1998).

The first important task of ITBB was to establish the HKSAR's IT or "Digital 21" strategy (<http://www.info.gov.hk/digital21>), which focused on introducing a high capacity government-wide "Electronic Service Delivery" (ESD) (<http://www.esdlife.com>) infrastructure to facilitate individuals, business and Government to interact easily and securely. The associated enabling factors were "People who know how to use IT" and "a cultural environment that stimulates creativity and welcomes advances in the use of IT" (HKSAR, 1998).

Hong Kong's Digital 21 strategy was an ambitious attempt to align government strategy with eGovernment strategy, defined as providing "seamless electronic services to the public and business in an efficient and customer centric way" (<http://www.info.gov.hk/digital21/e-gov/eng/index.htm>). Although the strategic vision has yet to be fully fulfilled (see eGovernment Integration in subsection 4.3.7), the HKSAR's strategic planning approach in eGovernment has positioned Hong Kong among the top 10 in eGovernment rankings since 2001 (Accenture, 2003).



#### *4.3.3 Systems Focus: Zimbabwe and Malawi*

In Zimbabwe and Malawi, basic websites have been developed, corresponding to an early phase of the Systems Focus stage with static information provision. A basic level of functionality is visible in Zimbabwe: the central government has a website at <http://www.zim.gov.zw>, where there are links to presidential speeches, two ministries and a handful of related resources. Most of the links on this page point to a common “under construction” page.

In Malawi, the situation is rather more advanced. The central government website at <http://www.malawi.gov.mw> provides links to some twenty two government ministries/bureaux, each of which has working and informative sub pages such as the National Statistical Office (<http://www.nso.malawi.net>). The Ministry of Finance incorporates a Department of Information Systems and Technology Management Services, wherein there is a vision statement “Highly Electronic Public Service by year 2006” (<http://www.malawi.gov.mw/finance/distms/distms.htm>). This is indicative of emergent, if isolated, eGovernment strategic thinking. One could also argue that there is evidence of eGovernment transformation on the webpages of the Accountant General’s Department, where information is available on national pension reform (<http://www.malawi.gov.mw/finance/agd/agdproj.htm>).

#### *4.3.4 Systems Focus - IT Planning Gap: Tanzania*

Tanzania, during the late 1990s, might have been classified as a government with a systems focus. During this time, several major “management information systems” were rolled out (<http://www.tanzania.go.tz/psrp/mis.html>); however, these moves were largely motivated by a data processing goal, instead of the attempt to create a vision for eGovernment. Since 2000, Tanzania has embarked on a “Public Service Reform Programme” (<http://www.estabs.go.tz>),

which calls for the implementation of a performance management system, described in detail in the Civil Service Department's Strategic Plan Document available from (<http://www.estabs.go.tz/download.html>). At this point, we might therefore consider Tanzania to have both strategic planning and systems in place. The missing link appears to be eGovernment planning, thus suggesting an IT planning gap. In this context it is noteworthy that the government's web pages (<http://www.tanzania.go.tz>) are written as static html produced with FrontPage 4.0, thus suggesting the lack of higher level IT planning and lack of an IST infrastructure. Nevertheless, the pages work fine, are bilingual in English and Kiswahili, contain rich content and provide access to a wide range of downloadable documents.

#### *4.3.5 IT Planning Gap: Philippines*

The Philippines is one of several Asian nations that have identified eGovernment as a strategic priority. Nevertheless, government spending has been lagging behind the targeted requirement of 1% to 2% of the government's budget (Ho, 2003). This has been criticized by the government's executive director of IT, Virgilio Pena, as enabling only limited IT implementation and causing government agencies to ignore integration and other high-level IT planning issues. Furthermore, decisions concerning budget allocation are reportedly made by the Department of Budget and Management, thus potentially causing a further IT planning gap.

#### *4.3.6 eGovernment Automation: China*

eGovernment in the Peoples Republic of China (PRC) works well with its comprehensive government website that is mainly used to disseminate information in simplified Chinese (<http://www.gov.cn/frontmanger/index.jsp>). The extensive search functions and pull-down

menu operations provide easy access to the sub-menus of 23 provinces, 5 self-administered regions and 2 special administrative regions, as well as over a hundred cities. Apart from official government information and hot news, several basic eGovernment services are available, such as digital maps, tendering, domain registration, and handling of complaints. Since China is a huge country with a population of 1.3 billion spread across 9.3 million km<sup>2</sup>, of whom only 7.2% have Internet access, its eGovernment automation and infrastructure will take some time to implement prior to its progress to higher levels of eGovernment.

#### *4.3.7 eGovernment Integration: Hong Kong (2004)*

Between 1998 and 2004, Hong Kong has made major changes in its eGovernment position and portfolio, moving from an eGovernment vision (2b), through a systems focus (3c) to eGovernment integration (4). To support the strategic planning focus of eGovernment, the Electronic Service Delivery (ESD) scheme provides over 130 eGovernment services to the Hong Kong community, supported by a common (bilingual) software interface for secure electronic transactions. Prominent examples of these services include a wedding channel (<http://wedding.esdlife.com>), a facility to report defects in traffic signs or potholes in roads, and online application forms for driving and vehicle licences. However, the utilization rate of most of these eGovernment services has been much lower than in other Asia-Pacific countries such as South Korea, Australia and Singapore. Hence, the HKSAR Government has placed more emphasis on integrating eGovernment services with the eGovernment infrastructure and processes as well as government infrastructure and processes.

The enhancement of eGovernment infrastructure and processes is required to support the eGovernment strategy and drive government infrastructure. These include: (a) facilitating the development of e-commerce through eGovernment programmes, (b) driving utilization of eGovernment, (c) revising the Electronic Transactions Ordinance for alignment with

international norms, and (d) promotion of open technological standards and their adoption (HKSAR, 2004).

The enhancement of government infrastructure and processes is required to support eGovernment infrastructure and ensure its cost-effectiveness. These include: (a) driving IT adoption through eGovernment; (b) enhancing the training and skills of the workforce through IT in education and IT education in tertiary education and vocational training; (c) restructuring government's IT Services Department with over 80% of its IT projects being outsourcing; and (d) bridging the digital divide to enable all sectors of the community to benefit from eGovernment and IT development (adapted from HKSAR, 2004).

#### *4.3.8 eGovernment Transformation: Canada*

Consistently ranked as one of the world's leading eGovernments, Canada is taking rapid steps towards eGovernment transformation. This transformation can be observed in government attempts to make structural changes in the way the government operates. There are attempts to provide incentives for knowledge sharing among government members, legislative changes, and broader initiatives, such as improving the entire country's workforce capabilities through eGovernment initiatives. Furthermore, there are extensive opportunities for citizens to participate in the design of services, via surveys, focus groups and interviews.

## **5. Discussion**

In proposing an alignment based maturity model of eGovernment, we have deliberately established the connection between more traditional forms of strategic planning and the process of eGovernment evolution. Nevertheless, this model breaks new ground by going beyond single-dimensional stage models through the integration of an alignment orientation – from both government and IT perspectives. The model thus helps to answer why a

government is where it is and how it may progress further, but with predictions that differ from those offered by more simplistic models. The model is designed to be both descriptive and indicative. It can be used as a diagnostic tool to establish the current eGovernment position of a country or jurisdiction. It can also be used, at a macro level, as a guide to future eGovernment developments. It is essential to point out, however, that such ‘black box’ models are in their very nature stereotypical. In the more systems-oriented eGovernments (i.e. where there is little or no centrally coordinated strategic planning), it will often be the case that one government department exhibits characteristics that are (far) in advance of those exhibited in other departments. Such complexities defy the logic of a model, when applied at the country level. The model should therefore be applied with caution.

Examples of such inter-departmental variations in eGovernment achievement are abundant. For example, in Pakistan the website of the excise and taxation department of the Punjabi state government (<http://www.punjab.gov.pk/e-t/index.htm>) stresses the need for transparent government with an explanation of the formulae used in calculating taxes. What is also apparent is that this website (as with all others on the punjab.gov.pk domain) appears to be available only in English, suggesting that it is targeted primarily at the business community, as well as international investors. Similarly, in Malawi, there is an apparently transparent description of the pensions policy (in English, but not Chichewa) and in Tanzania there is some remarkably frank discussion of the ‘corruption’ that was part of the country’s government history (in both English and Kiswahili). We suggest that the dissemination of information via the web can exert a significant anti-corruption effect. These departmental level initiatives and changes can act as catalysts for a broader change process across the government as a whole, and it is this kind of change that pushes a government towards transformation and fully fledged eGovernment.

Notwithstanding these advances, it is notable that many governments appear to get bogged down in the eGovernment development process. In the Philippines, for instance, eGovernment is used as a catch phrase to provide resources for basic office automation, but not eGovernment itself. In other words, government strategy and IT systems are not aligned, most likely due to a planning gap on the IT strategy side. Another hurdle that eGovernments have to overcome relates to the need to drive up citizen usage, thereby creating critical mass. Statistical measures of usage rates (not just hit rates) are notoriously hard to obtain, making it hard to assess just how well eGovernments are doing in reaching out to their citizens online. Indeed, they are also open to abuse, as evidenced in December 2003 in Hong Kong, when the Independent Commission Against Corruption (ICAC) arrested a number of current and former executives of ESDLife on charges of arranging for 70 suspected bogus patrons to make more than 100,000 bookings for sports facilities, none of which were actually used, at a cost of over HK\$700,000 (ICAC, 2003, 2004).

Persuading citizens to use eGovernment services is unlikely to be an easy task: considerable resistance to change can be expected, and governments may find that they have to make life inconvenient for those who insist on ignoring online options. For example, they may close down some over-the-counter service providers (thus saving costs), forcing citizens either to go online or to travel further to one of a smaller number of such providers. This raises ethical concerns, particularly for the less mobile, less well educated, computer illiterate sections of the population who may not have easy access to online resources. Educational programmes will be necessary, as well as the provision of publicly accessible Internet facilities at zero cost to the citizen.

Associated with the issue of education is that of language. eGovernment portals that are not available in the national language (or languages used by significant minority groups) are not going to be used by a critical mass of citizens: one can only assume that much, or

even the vast majority, of the population may be unable to comprehend the information and services provided. Indeed, there is also evidence that eGovernment is for the educated minority in developing countries. This would be a truly unfortunate situation, since it is often the less educated that have most to gain from online initiatives that empower them to make decisions based on what is in their best interests, and would stand in stark contrast to the presumably universal principle of government: serving all citizens. Hong Kong's decision to provide all information in a bilingual format (English and Chinese are co-official languages in Hong Kong, even though 95% of the population is ethnically Chinese) is illustrative of the extent to which governments will have to go in order to overcome the rhetoric-reality gap. If there are significant minorities that do not read the language of the majority, then provision needs to be made in order that eGovernment does not become exclusive and divisive.

Where the strategic orientation of eGovernment is concerned, there are useful parallels to be made with eCommerce. It is certainly tempting for governments to focus on front-end application development before strategy, since this is perceived to deliver benefits to citizens. However, such systems-focused approaches are also short sighted. There is a considerable risk that when eGovernment strategy finally does emerge, it will be found to be incompatible with the developed systems, which then either have to be re-engineered or abandoned altogether. There is a pragmatic need here to distinguish between the provision of relatively static information (e.g. the price of grains in developing countries) that requires minimal resources to develop and disseminate, and the development of complex eGovernment systems (e.g. online payment systems that are integrated across government departments) that are considerably more costly and resource intensive. In the latter situation, considerable strategic planning is required if effective cross-departmental integration is to be achieved. Where the development of strategy is concerned, governments with a shorter (or less complex) history of administration may have inbuilt advantages as they are likely to have

fewer administrative procedures to be re-engineered. Governments that have taken several hundred years to formalise their bureaucracies, or indeed ex-colonies that have been bequeathed such bureaucratic systems, may find that extensive reengineering and unravelling of processes is required. In short, the transition to eGovernment is neither straightforward nor easy. Considerable strategic planning is believed to be essential if a fully fledged eGovernment is to be achieved.

## **6. Conclusions**

The transition from government to eGovernment appears to be inevitable for many governments around the world. Just as the influence of eCommerce in the global economy has swelled over the last decade, so eGovernment can also be expected to develop. This development is also in line with the focus on “new public management” (Bevir et al., 2003; Gendron et al., 1999; Hood, 1991), which tries promote an agenda of citizen-centric and accountable government, and views the citizen in part as a customer, though Ciborra (2003), amongst others, is highly critical of much of this rhetoric. There are fundamental differences between eCommerce and eGovernment which demand attention, notably the often monopolistic status of government, the fact that governments have the moral and legal responsibility to serve all of their citizens, and the need for governments to have a high level of legitimacy. There are also similarities, such as the need to drive down costs, the need to provide quality services to citizens (customers), and the expectations that citizens (customers) have for a user-friendly 24\*7 service.

In this paper, we have developed and illustrated an alignment-based maturity model of the government to eGovernment transition process. This incorporates a number of preferred and less preferred transition strategies. We suggest that future research should assess the extent to which this model is validated by eGovernment reality, in particular the



way in which eGovernment develops from initial rhetorical intentions through strategic planning, systems development, integration and finally transformation. It may well be that a post-transformation stage will emerge, since strategic planners are unlikely to be content with any current position: it is in their blood to be generative, to conjure up new services, new dynamics, new forms of transformation, new ways of involving citizen participation. Such innovations may well change government as we know it today, though this may be little more than wishful thinking in the case of the more authoritarian governments that do not tolerate political opposition. Nevertheless, we expect that the increased dissemination of information that is inevitably associated with eGovernment can only have a positive impact (from the citizen's perspective) on the way governments are run and are held accountable. The more guidelines, rules, practices and lines of accountability that are made publicly available, the more transparent government will be.

## 7. References

Accenture (2000a) eGovernment: connecting the dots.

<http://www.accenture.com/xdoc/en/industries/government/egovernmenta4.pdf>

Accenture (2000b) Implementing eGovernment: rhetoric and reality. *Insights*, Issue No. 2, June <http://www.accenture.com/xdoc/en/industries/government/egovernmenta4.pdf>

Accenture (2001) eGovernment leadership: rhetoric vs. reality – closing the gap.

<http://www.accenture.com/xdoc/en/industries/government/2001FullReport.pdf>

Accenture (2002) eGovernment leadership: realizing the vision.

[http://www.accenture.com/xdoc/en/industries/government/eGov\\_April2002\\_3.pdf](http://www.accenture.com/xdoc/en/industries/government/eGov_April2002_3.pdf)

Accenture (2003) eGovernment leadership: engaging the customer.

[http://www.accenture.com/xdoc/en/newsroom/epresskit/egovernment/egov\\_epress.pdf](http://www.accenture.com/xdoc/en/newsroom/epresskit/egovernment/egov_epress.pdf)

- Bevir, M., Rhodes, R.A.W. and Weller, P. (2003) Traditions of Governance: Interpreting the Changing Role of the Public Sector, *Public Administration*, **81**, 1, 1-17.
- Burn, J. and Robins, G. (2003) Moving towards eGovernment: a case study of organisational change processes. *Logistics Information Management*, **16**, 1, 25-35.
- Chen, H. (2002) Digital government: technologies and practices. *Decision Support Systems*, **34**, 3, 223-227.
- Ciborra, C.U. (2003) Unveiling E-Government and Development: Governing at a Distance in the New War, Working Paper 126, London School of Economics & Political Science, <http://is.lse.ac.uk/wp/pdf/WP126.PDF>.
- Criado, J.I. and Ramilo, M.C. (2003) E-Government in practice: an analysis of web site orientation to the citizens in Spanish municipalities. *The International Journal of Public Sector Management*, **16**, 3, 191-218.
- Galliers, R.D. and Sutherland, A.R. (1991) Information Systems Management and Strategy Formulation: The 'Stages of Growth Model' Revisited. *Journal of Information Systems*, **1**, 2, 89-114.
- Gendron, Y., Cooper, D. J. and Townley, B (1999). "In the Name of Accountability, Accountability Gets Lost: State Auditing in the Province of Alberta and New Public Management." Paper presented at the Critical Perspectives on Accounting Conference, April 22-24, City University of New York, New York.
- Gordon, T.F. (2002) Introduction to E-Government, ERCIM News, Special Theme: E-Government, European Research Consortium for Information and Mathematics, **48**, January, 12-13.
- Henderson, J.C. and Venkatraman, N. (1993) Strategic alignment: leveraging information technology for transforming organisations. *IBM Systems Journal*, **32**, 1, 4-16.

HKSAR (1998) *Digital 21: HKSAR Information Technology Strategy*. Government of the HKSAR, November.

HKSAR (2004) *Digital 21 Strategy: Sustainability and Opportunities*. Government of the HKSAR, March.

Ho, A.L. (2003) EO allots 1-2% of RP budget to e-government spending. *Inquirer News Service*, January 23.

Hodgkinson, S. (2002) Managing an e-government transformation program. *Working Towards Whole-of-Government Online Conference*, Canberra, September.

Hood, C. (1991) A Public Management for All Seasons?, *Public Administration*, **69**, 1, 3-19.

ICAC (2003) Graft Probe Reveals Alleged Fraud to Boost Electronic Transactions with Government, Independent Commission Against Corruption, December 18<sup>th</sup>.

<http://www.icac.org.hk/eng/0/1/8/14271.html>

ICAC (2004) Six Charged for Alleged Fraud over Electronic Transactions, Independent Commission Against Corruption, November 16<sup>th</sup>.

<http://www.icac.org.hk/eng/0/1/8/14868.html>

Koo, K.H. (2004) Internet Access Costs Two Euros per Minute in North Korea, KOTRA, April 23<sup>rd</sup>: [http://crm.kotra.or.kr/main/common\\_bbs/notice\\_read\\_nk.php3?](http://crm.kotra.or.kr/main/common_bbs/notice_read_nk.php3?board_id=21&pnum=899710&cnum=0)

[board\\_id=21&pnum=899710&cnum=0](http://crm.kotra.or.kr/main/common_bbs/notice_read_nk.php3?board_id=21&pnum=899710&cnum=0)

Luftman, J. (2000) Addressing Business-IT Alignment Maturity, *Communications of the Association for Information Systems*, **4**, 14, 1-51.

Marche, S. and McNiven, J.D. (2003) E-Government and e-governance: the future isn't what it used to be, *Canadian Journal of Administrative Science*, **20**, 1, 74-86.

Martinsons, M.G., Davison, R.M. and Tse, D.S.K. (1999) The Balanced Scorecard: A Foundation for the Strategic Management of Information Systems, *Decision Support Systems*, **25**, 1, 71-88.

Mintzberg, H. (1996) Managing Government, *Governing Management*, 76, 3, 75-83.

Nolan, R.L. (1979) Managing the Crises in Data Processing. *Harvard Business Review*, **57**, 2, 115-126.

Osbourne, D. and Gaebler, T. (1992) *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector*. Addison Wesley, Reading, MA.

Slevin, J. (2000) *The Internet and Society*. Polity Press: Cambridge, UK.

Symonds, M. (2000) A survey of government and the Internet. *The Economist*, **355**, 8176, S3-S5.

Thong, J.Y.L., Yap, C.S. and Seah, K.L. (2000) Business Process Reengineering in the Public Sector: The Case of the Housing Development Board in Singapore. *Journal of Management Information Systems*, **17**, 1, 245–270.

West, D.M. (2002) *Global E-Government Survey*. World Markets Research Centre, <http://www.worldmarketsanalysis.com/pdf/e-govreport.pdf>