Electronic Government

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Electronic Government: Where Are We Heading?

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Abstract. In common understanding, Electronic Government focuses upon relatively simple transactions between identifiable customers (citizens, enterprises), on one side, and a multitude of government organisations in charge of particular activities, on the other. Attention is chiefly directed to Electronic Service Delivery. If the promise of e-Government as the principal key to modernising government is to be kept, this concept has to be broadened so as to include the full enabling potential of IT, as well as the complex reality of government and public governance. There is encouraging political support for e-Government, yet implementation problems could inhibit further success.

1 What Electronic Government Is About

Electronic Government (or e-Government) as an expression was coined after the example of Electronic Commerce. But it designates a field of activity which is with us for several decades yet. In many respects, e-Government is just a new name for the informatisation of the public sector, which has been going on for several decades now (Lenk 1994). The use of IT in public administration and in other branches of government (including parliaments and the judiciary) has attained a high level in many countries of the industrialised world. But there was hardly any political interest in this ongoing and almost invisible process of modernising government. Only academics and some far-sighted consultants insisted on the significance of informatisation for public governance and its modernisation (Snellen and van de Donk 1998).

For a long time, their message went unheard (Lenk 1998). Especially New Public Management as the most important explicit movement of government reform hardly recognised the enabling potential of IT for changing the work practices and the business processes in the public sector. Its image of IT was one of an auxiliary tool, to be used for supporting financial management and statistical information.

This situation changed fundamentally with the announcements of the then US Vice President Al Gore in 1993, heralding not only the potential for a renewal of society which an “Information Society” holds, but relating it directly to the need of improving the performance of the public sector. The lesson inherent in harnessing the propagation of an Information Society to public sector modernisation has been learned earlier in Asia than in the European Union, where the Action Plan, based on the Bangemann Report of 1994, concentrated one-sidedly on the private sector of the

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economy. But the situation has now been redressed also in Europe. The American and Asian examples have greatly stimulated the interest in the potential of e-Government as one important facet of an Information Society.

Although the new impetus presents great opportunities for improving government processes, the underlying concepts of e-Government remain fairly vague. Moreover, they are still driven by analogies from E-Commerce. This may misdirect the attention of governments which are eager to innovate. Things are made to appear as if they were entirely new, and both the achievements and the lessons learned from several decades of using IT in the public sector are neglected by those who are discovering the enabling potential of IT for the first time.

Whilst in the past, IT-support was inward-looking and chiefly brought to bear on typical back office activities, the focus has now moved toward the external relationships of all branches of government. It is on electronic citizen service, on electronic procurement of goods, as well as on electronic democracy including democratic deliberations, citizen information, and electronic voting. Many early projects inspired by the Information Society rhetoric focussed on politically visible fields like online citizen services, without giving much consideration to whether the promised improvements were catering to the most pressing needs of citizens or enterprises. Also in the field of E-Commerce, early projects were launched without caring much about what the potential customers would actually need. Up to the “dot.com” crisis of the year 2000, market research and target group identification had been largely absent. But in the private sector, market forces quickly taught the right lessons.

The errors of e-Government are much harder to detect, and incentives to correct them do not always exist. A case in point is the assumption that online access "24 hours, 7 days a week" would meet the prime concern of most citizens when they have to approach a public organisation for services delivery or other reasons. The results of research on citizen-government relations, which were accumulated over decades, have been totally neglected in order to present things in such a way as if existing “online” solutions (which fall short even of involving interaction via videoconferencing) would hold the key to solving all problems. The political wish to announce serious actions and quick solutions has also led to focusing on transactions like registering a car or applying for an identity card, which citizens mostly do not consider as a service but rather as a nuisance. Many governments hoped to speed up the diffusion of Internet use within the population by offering relatively simple government “services” over this channel.

So it was less a desire to enhance back office productivity and service quality which prompted governments to embark on the type of Electronic Service Delivery, which is so prominent now. The overriding political concerns seemed to be of an economic nature, the state assuming a forerunner role in entering the Information Society. Administrative modernisation was piggybacked by economic policy. In federally funded projects in Germany it was at no time clear what the priorities actually were: propagating an electronic signature deemed necessary to make the country become a player in the world league of E-Commerce, or improving service quality and productivity in the public sector.

Among proponents of e-Government, this concentration on Electronic Service Delivery has contributed to a fairly distorted view of the whole machinery of government and of public governance. The system of public governance is now changing in many respects, and states as the former key players are re-positioning
themselves with respect to global corporate players and a civil society which is discovering new ways of self-organisation. And again, quite like in the New Public Management wave of administrative modernisation, which is now ebbing off, the role which IT can play in this context is grossly underestimated.

Most of the present endeavours at promoting e-Government fall short of acknowledging two things, the complexity of government and of governance, and the potential of IT beyond what is cast on the market so far. But both are extremely important. Where these two circumstances will join, they will make e-Government a fascinating experience.

The convergence of new forms of governance and future ventures in IT will transform the ways in which we work, communicate, deliberate and negotiate. To set the stage, we have to broaden the concept of e-Government (Lenk and Traunmüller 2001). If we do not succeed in showing a way out of the narrow corridor of improving access to simple and highly automated business processes within a given institutional frame, e-Government might soon become another example of exaggerated “hype”.

In order to broaden the concept of e-Government beyond Electronic Service Delivery, the German Society for Informatics (GI) published, together with the German Society of Electrical Engineering (VDE), in September 2000 a Memorandum on “Electronic Government as a key resource for modernising government. This memorandum dealt with the great prospects of a wider usage of information technology for a lasting modernisation of the state and public administration. With the same intention the OCG (Austrian Computer Society) established a “Forum e-Government” (www.gi-ev.de/informatik/presse/presse_memorandum.pdf and www.ocg.at).

If the promise of e-Government as the principal key to modernising government and governance in more than a superficial sense will ever materialise, a clearer view of the agenda of modernising public services should come to prevail. This view should not be tainted by considerations of applying readily available solutions to problems which are not sufficiently investigated. Knowledge of the administrative domain has to be harnessed to a good understanding of the opportunities opened up by technology. And the technological perspective should not be restricted to the present state of development of the technology and to what is on the market now.

In what follows we therefore deal, beyond the immediate perspectives of Electronic Service Delivery, with both the requirements for a pervasive e-Government flowing from the complexity of the public sector and the enabling potential of IT for e-Government. To conclude, we shortly address the significance of political support and successful change management, as critical factors for success. In so doing we draw on a theoretical foundation of e-Government which we published earlier (Lenk and Traunmüller 1999; see also Lenk and Traunmüller 2000 and 2001; Lenk, Traunmüller and Wimmer 2002).

2 Electronic Service Delivery: The Immediate Perspectives

The delivery of services over the Internet has attracted most of the attention devoted to e-Government. A “virtual administration” is more and more taking shape. Public administrations will eventually appear no longer as a set of independent agencies which have to be approached separately, but as a collective unit with which contact can be made via one and the same “portal”, or “window”. Such a common access
structure will reduce neither their intrinsic complexity nor the required precision of their work. No institutional reform is required to make this happen. A One-Stop Government or “Single Window Service” will alleviate many burdens, for individuals and businesses alike. At the same time, it will make public administration more transparent.

One has to admit: this picture is still a mere a vision than reality. Most administrative bodies are committed to first steps at improving their own services, without looking at what their neighbours do. Yet the integration of their business processes across organisational boundaries will become very attractive, at least from the addressees’ standpoint. In order to make such a vision of “seamless government” come true, specifications of future service delivery arrangements have to be elaborated with great care. These have to take into account a multitude of dimensions:

- Addressing the needs of target groups (e.g. professionals, taxpayers, the elderly)
- Allowing for a multichannel access mix (one-stop shop, online, letter, fax etc.)
- Taking into account service complexity (which varies according to the categories of business processes supported)
- Establishing the required level of service integration (eventually single-window access to all services regardless of government level and organizational unit)
- Providing the required level of security (user identification, authentication, cancellation and non-repudiability of documents and communications)
- Implementing a data protection policy and transparency measures
- Making reliability and usability a prime concern (creating user interfaces which match existing skills, incentives, culture)

These requirements cannot be discussed in detail here (Lenk 2002). We will instead draw attention to the role of portals in an architecture for service delivery which is predicated on a clear separation between front offices and back offices. In such an architecture, front offices can be customer-centered, whilst back offices are task-driven. Some sort of middleware (or “mid office”) is required to link front offices to back offices. Typically, front offices comprehend portals which may either directly be accessed by the citizens or used in a physical one-stop shop or a call center where citizens are served.

Portals cover a wider range of functions, and they can be designed to cater for specific demands of their users. Among their most prominent functions is the provision of information about services. This comprises basic information as to which services are available (or which duties citizens have to comply with), as well as information about how to get in contact, which evidence should be presented, etc. For a citizen, this may be of help in preparing a contact at a physical (front) office or in deciding about further steps on the Internet. Next, the download of forms is often of great help to citizens, even if such forms are filled in by hand and mailed back offline.

A great advantage of portals is the possibility of accessing information which is not confined to the range of services offered by a specific agency. At one single access point, citizens can obtain information about all levels of government, and it is of secondary importance which government level or which other (private or semi-public) actor runs the portal. Canada is perhaps the leading country with regard to single-window access to government. www.help.gov.at is the address of the Austrian national portal, where easy access to information concerning 55 life events (getting a passport, marriage, change of address etc) is provided. Similarly, the French Portal
http://www.service-public.fr provides not only information but holds over 1,000 forms for download, covering the French national administration as well as local and regional government. Moreover, both portals have recently created specific entries for business situations, in addition to typical life events. The work on their extension into a gateway providing access to electronic transactions is in progress.

Since many contacts of ordinary citizens with public bodies are not so frequent, we predict that unassisted online transactions will fulfill only part of the needs of citizens. When it comes to more complex transactions, a citizen may need personalised help, or want personal contact and explanations. This should be made possible without the citizen having to go in person to the back offices where the service is produced or clerical work is done, and it can be achieved either indirectly via physical one-stop shops or call centres or directly through the portal.

Perhaps quite soon will we see the emergence of “telepresence” of a human agent based in a back office somewhere, via advanced forms of videoconferencing, in a front office service situation or directly on a screen at home. We also expect that more and more physical one-stop offices will be created, which rely on Internet-based (and Intranet-based) services. In an “administration à accès pluriel” (Rapport Lasserre 2000), multichannel access involving multifunctional front offices will bring the advantages of the Internet also to citizens who for one reason or another do not use the Internet personally. This option is not yet pursued in countries which still hope to encourage the diffusion of Internet access by making it attractive through online public service offerings. May it be recalled at this point that France, over 20 years ago, first embarked on administrative “Télé-services” in order to market the Télétél (Minitel) system. After some deceiving pilots, this strategy was quickly abandoned in favour of encouraging the (successful) diffusion of Minitel through zero-cost access to a nationwide phone directory. But in a world dominated by players from other world regions, European experiences obviously do not count, even not for the European Union.

To sum up, portals provide an ideal leverage for the modernisation of public services. Yet many problems still have to be solved. Opening a “window to the outside” will lead to considerable rearrangement inside government. This could be limited to re-arranging the interface of business processes so as to make them candidates for Web Services. But it can also amount to a momentous “E-Transformation” inside government, which would be attuned to the equally momentous changes in public governance which are already beginning to be felt worldwide. But, as we said before, narrow views about e-Government can prevent us from facing this challenge.

3 Broadening the View: Government and Public Administration from a Systemic Perspective

In order to apprehend the wide range of opportunities which e-Government now opens up for improving the public business, we have to recall that public governance is not just about delivering services. It includes democratic policy formulation, the execution of these policies, and the evaluation of their results so as to improve policy making in the future. The ways in which branches of government work; in policy-
making and planning, in deciding cases and in settling conflicts, are manifold and often quite different from what can be found in the private sector.

The diversity of work practices, business processes, organisational structures and institutional settings in state, politics and administration cannot easily be described. It also depends on legal and political preconditions, which furthermore differ considerably from country to country. Especially at the level of the European Union, this diversity is seldom acknowledged. Moreover, vendors have an interest to downplay it in order to sell their products to more than just one country. But the governmental systems that have evolved on the European continent have a very complex structure. The French, the German and also the former Austro-Hungarian model of public administration are still very influential, and they are quite different from British or American governmental traditions. Many EU-financed European pilot projects have stumbled over these differences.

Most important is a look at what are the typical results, or products, of the executive branch of government, including local government and including also mixed forms of production like public-private partnerships. Only a minor part are the products of administrative activity typical services, where individual “customers” can be identified. More often than not, they benefit a multitude of addressees, providing public goods e.g. in the form of common infrastructures. Examples include road construction and maintenance, or police patrols. Other kinds of government services consist in financial transfers, which aim at a redistribution and at social justice by giving to some and taking from others.

But the most important type of a administrative action is regulation through authoritative decision making, which takes place e.g. in granting licenses, in allocating rights and duties. Administrative decision-making has mostly to do with more or less complex situations where political and legal regulations are applied to distinct cases. To give an example, a building permit will not only benefit a houseowner, but compel the neighbours to tolerate building activities.

Finally, among the activities of the public sector we should not forget information management activities, especially in the large field of building up and maintaining fundamental data bases about inhabitants, land and economic activities. Such data bases include civic registers, geographic information systems, official statistics etc. They support administrative action and, at the same time, they provide services to the economy.

A closer look at the types of processes and products which are characteristic of the public sector is required for assessing which type of information system could support them. To complete the picture, we should also mention the policy making side, e.g. in the legislative branch of government. For many situations, there is no possibility of importing ready-made systems from the private sector. A case in point is “E-council”: a system to support the deliberations and the work of local government council members (Schwabe 2000). Such systems are specific to the public sector, and there is not much willingness as yet to spend public money for their development.

4 Taking the Potential of Information Technology Seriously

Not only is government and public governance an uncharted field for many of those who presently pay lip service to e-Government. Also the vast enabling potential of IT,
beyond what is to be found on the market so far, remains largely unacknowledged. It
could be brought to improve many processes and structures in the public sector.

In our book, we conceive of the history of IT use in the public sector as a series of
application generations, reflecting the respective state of advancement in hard-
and software (Lenk and Traum Mueller 1999, p.21ff.). e-Government is no exception to
this. Here, the most relevant feature is communication and world wide information
access over the Internet. Each generation of IT carried some general guiding ideas
about what could be done with the technology. An example is provided by the idea of
creating huge data banks (as well as that of regulating their use through data
protection legislation), which took shape in the wake of disk storage devices. Another
example is the “paperless office” as a guiding idea which was prompted by the advent
of the PC. Each IT generation suggested new applications, and the practice of
business was perceived principally in the light of what the latest generation of
computers or information systems could do to support it. The general pattern is that
problems always tended to be perceived in the light of available solutions.

The development of administrative informatics can thus be understood in a sort of
dialectical movement. New applications suggested by new waves of technology
seemed to arrive just in time so that problems besieging a field of practice could be
tackled. The new generation of technology seemed to hold the ultimate solution for all
problems. Yet when the new perspective was put into use it soon appeared that its
promise was only partial. It became clear that under the spell of a central guiding idea
its promise was overstated.

e-Government is firmly anchored within this trend. The current fashion of looking
at administrative processes from a citizen-interaction perspective is just a continuation
of the temptation to seek inspiration from technological progress and to derive from it
guiding principles for good practice. To stress the positive side: now that, with the
help of Internet technology, new forms of electronic service delivery appear possible,
the problems of citizens in their dealings with administrative agencies seem to be
taken seriously for the first time. But there is the other side of the coin as well: the
interaction is interpreted in a way so as to make technology-driven solutions appear as
valid solutions to them. It is seldom question of social innovations in administrative
or political practice, which are IT-mediated or IT-enabled (Hoff et al. 2000). Not
surprisingly, many truly important policy fields have not got yet advanced IT support.
Providing services to handicapped persons, providing neighbourhood social services,
or dealing with people with immigration status are hardly given a thought in e-
Government strategies. A large part of the population seems to be simply absent in
political statements about the E-Society.

5 Political Support – A Window of Opportunity

But nevertheless, the fast growing political interest in e-Government arouses great
hopes. In order to prevent such hopes from dissipating, we now have to look for quick
and tangible success for important groups of stakeholders. There are encouraging
signs. Inter-organisational cooperation which is of vital importance to the innovation
alliances has considerably increased. Even in a very complex polity like Germany
where local governments compete with each other, and moreover are extremely
jealous of anything the Land or the Federation does, cooperation is progressing. Still,
the lacking willingness of many agencies to make investments in long-range projects, as well as the reluctance to spend money for qualifying staff, are points of distress. Another point of concern is the lack of clear visions of what a modern public sector should look like. Among the central questions that have to be answered is the following one: Under which conditions do we want our public organisations to function in the future? Which products and services do we want them to provide? And should these be produced and/or delivered by public organisations themselves or from external sources or in partnership with others? The lack of well-founded visions of a modernised public sector becomes obvious when actors trying to promote e-Government find it difficult to figure out viable business models for new IT-based administrative services.

If such visions are not developed, the temptation will persist to look at daily practice only in the light of what the technology can do to improve it. In the end, therefore, strategic thinking will be required. Only if well-founded visions of the future work of state and administration will be developed, will e-Government become a lasting success.

6 Implementation – The Hidden Threat to e-Government

According to a recent management brief issued by OECD (OECD 2001), the inability of governments to manage large public IT projects threatens to undermine efforts to implement e-Government. In a climate of euphoria, it is easy to overlook hindrances on the way to a lasting improvement of governmental and administrative practice. Political discourse tends to lose contact with the reality of what can be achieved with given resources and in a reasonable period of time.

Action has to be taken to improve the conditions for successfully implementing e-Government projects. On one hand, thanks to the evaluation of past technical inventions we already have considerable knowledge about the success factors for projects and their diffusion. On the other hand, again and again we forget the lesson learned. One reason is that too many experiences made during implementation are generally scattered and not communicated. Also there is a widespread inclination to ascribe implementation difficulties to an immature state of technology.

Furthermore, there is a gap between those making concepts and those who have to implement them. The technical and logistic implementation of solutions is usually under the responsibility of field organisations and their management. In adapting software to the structures and working processes of the organisation they often miss adequate support for planning and implementing the required organisational changes. Software suppliers tend to provide technical solutions to complex socio-technical problems. Theirs is the role of an engineer, but there seems to be no architect in charge of the overall human-machine interaction system. Procedures of systems design will have to evolve toward holistic methodologies, balancing the technology package and the complex socio-technical work reality (Lenk and Traunmüller 1999, p.93ff.).

There is thus a real danger that e-Government will glide down the slope from a mountain of euphoria into a valley of deception. Only in broadening the concept and in recalling its basic tenets will we steer it toward lasting success.
References


Centralization Revisited? Problems on Implementing Integrated Service Delivery in The Netherlands

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Abstract. In the Netherlands, the development of integrated public service delivery has been an important topic for over a decade. Despite the investments, the results are meager. In the literature, an overwhelming and contradictory amount of conceivable problems is mentioned that can explain these lagging results. Four case studies were carried out to find out which of these problems are most pressing in the particular context of integrated public service delivery. These are found to be: (1) indistinct and subdivided responsibilities, (2) focus on the autonomy of the own organization, and (3) insufficient scale. Given these problems, and given their different importance in the four cases, it is argued that the effective development of integrated public service delivery in the Netherlands requires more centralization.

1 Introduction

Enhancing the level of public service delivery has received much attention in the Netherlands but has not lead to substantial results yet [2], [4], [7], [9]. This applies in particular to the integration of service delivery (ISD). In short, ISD means that multiple public organizations cooperate to deliver their services in an integrated way, usually by means of an integrated counter. By doing so, these organizations try to offer a solution to the problem of fragmentation. Fragmentation of service delivery is seen as an important problem for at least thirty years in the Netherlands [8], [10], [11], [27]. It is considered problematic for both citizens and government. Whereas citizens cannot find their way in the bureaucracies, government does not reach its citizens, and public policy remains ineffective.

This paper argues that three characteristics of ISD explain why results are meager. First, to realize ISD, interorganizational cooperation is a necessity. Organizations must tune work processes, create new services together and mutually adapt their applications. This implies a major change for participating organizations, which can be problematic on its own. The third characteristic is the use of information and communication technology (ICT). Because public services are to a large extent information services [1], exchange of data and information is one of the crucial elements of ISD. It is unthinkable that this exchange of information can take place without the support of ICT.
Given the literature, there are numerous theoretical reasons for the failure of interorganizational cooperation, organizational change and information system development, e.g. [5], [14], [15], [16], [19], [22], [23], [24], and [25]. Moreover, literature on success factors and solutions is innumerable as well, e.g. [3], [12], [13], [18], [19], [23], and [30]. Adding only the findings of this limited number of authors, at least 150 different reasons for success and failure appear [17]. However, it is not evident which of these are most important in the particular context of ISD in the Netherlands. Therefore this literature does not provide organizations with helpful insights in problems associated with ISD and situations in which these are more probable to occur. Because the literature is not well adapted to the particular situation of ISD the question remains:

Which are the problems hampering integrated service delivery in the Netherlands and why do these problems exist?

This paper reports about a research carried out to answer this question. It has the following structure. The next section discusses the research method. Section 3 presents the main problems and answers the first part of the central question. Section 4 answers the second part by discussing probable causes. Finally, Section 5 discusses the research and proposes topics for further research.

2 Research Method

To answer the research question, four case studies were conducted. Because the number of ISD projects that have passed the planning phase is limited in the Netherlands, the selection of cases was mainly based on convenience sampling. However, as Table 1 shows, a certain spread in domain, approach, results, and duration was achieved. The following cases were selected:

1. Counter for (starting) companies: cooperation of mainly chamber of commerce, tax office, and municipalities.
2. Counter for (starting) companies: combination of physical and virtual counter.
3. Health counter: cooperation of nursing and old people’s homes and a municipality.
4. Counter for the unemployed: cooperation of municipal social service department, job centres, and social security.

<table>
<thead>
<tr>
<th></th>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
<th>Case 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Mainly decentralized</td>
<td>Mainly decentralized</td>
<td>Decentralized</td>
<td>Decentralized, then centralized</td>
</tr>
<tr>
<td>Integration</td>
<td>Little</td>
<td>Little</td>
<td>Virtually none</td>
<td>Some</td>
</tr>
<tr>
<td>Electronic communication</td>
<td>Little</td>
<td>Little</td>
<td>Virtually none</td>
<td>Much</td>
</tr>
</tbody>
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The case studies consisted of an extensive documentation analysis and additional interviews with project leaders. A structured list of 150 theoretical reasons for success
and failure was used to systematically check which of these were present and which were most pressing in each individual case. The period of data collection was September to December 2001.

3 Main Problems in the Cases

For answering the first part of the research question, this paper only presents cross-case results. The individual case studies are discussed in [17], but are not needed for the purpose of this paper. The main problems that were identified in the cases can be split up in three categories:

- Problems on indistinct and subdivided tasks and responsibilities
- Problems through a focus on the autonomy of the own organization
- Problems on scale

Problems on Indistinct and Subdivided Tasks and Responsibilities

These problems root in the legally defined organization structure of the public sector in the Netherlands. Within this structure, tasks and responsibilities are often not distinctly divided between organizations – both in a horizontal and a vertical way. As a result of this, the decision-making processes involve multiple organizations.

A. Division of authority and responsibilities: ISD asks for cooperation, tuning, and rethinking tasks and responsibilities. In the cases organizations emphasized their own – often legally based – responsibilities, and did not entrust them to other organizations. In Cases 1 and 3 parties tried to set up a foundation to overcome this problem. However they did not come to an agreement because none of the parties was willing or able to hand over responsibilities to this foundation.

B. Confining role of national public organizations: The cooperating local organizations are dependent on decisions of their national counterparts. Local organizations that try to cooperate perceive that these organizations often do not support them in their attempts. Therefore they are limited in their scope. In Case 2 the national public organizations were even called ‘the common enemy’ (translated from Dutch).

C. Legal constraints and uncertainty: A sizable part of public organizations’ positions and tasks is legally defined. When parties cooperate, they must act within these constraints, which can lead to severe restrictions for ISD. In the Netherlands, tax offices are for example not allowed to make their systems accessible online. This makes electronic communication in Cases 1 and 2 difficult.

The frequent number of small policy changes was perceived as a problem as well because it causes uncertainty. In Case 4 the concerning project leader experienced the change that was promoted as major by government just as one out of many others.

Problems through a Focus on the Autonomy of the Own Organization

Each of the participating organizations has its own identity, culture, and way of working. When they cooperate, adaptations must be made on each of these. However, organizations experienced this as problematic and therefore kept their internal focus.
A. *Giving up identity:* Placing part of organization’s services behind an integrated counter makes an organization less visible to its citizens. With losing this visibility, parties in the cases also feared they would loose part of their identity. This went hand in hand with a reserved attitude toward collective responsibilities and tasks. Case 1 illustrates this with its business cards: the logo of every participating organization is on it (see Fig. 1).

B. *Tuning of work processes:* Every participating organization has its own way of working. Tuning and adjusting work processes can streamline activities. However, the cases indicate that this asks for major efforts of all organizations, which lead to nearly no adaptations at all. The project leader of Case 2 illustrated this with stating that accumulating registration forms of the seven participating organizations would lead to a seventy centimeters’ pile of paper. He remarked about this: ‘when we interfere with that, we just have a very sour life and tiring discussions that lead to nothing’ (translated from Dutch).

C. *Lack of standards:* Because of the large diversity of applications and formats in use in the participating organizations, electronic information exchange between them is far from easy. However, parties did not overcome this problem in other ways than by sending faxes, making phone calls, sending e-mails, and retyping data. There was also a lack of standards in definitions. In Cases 1 and 2 every participating organization had its own definition of entrepreneur on which they did not agree till date.

![Business Card](image)

Fig. 1. Example of a Business Card

**Problems on Scale**

Because of the local level of the ISD, the projects have a relative small scale. Due to this small scale, organizations do not have sufficient resources and power to fulfill the needs for a sound integrated counter.

A. *Insufficient personnel:* During the ISD-projects organizations had to continue their regular activities. This lead to capacity problems for the projects. Moreover, because some important functions were only occupied by one or two persons, illness and dependence on single persons was reported as a problem. As a result of this, in Case 1 the communication about the project was stopped for half a year because of a long illness of only one of the project members.
B. **Insufficient financial capacity:** Parties indicated that the development of the necessary infrastructure and mid-office functionalities largely exceeded their bearing power. According to them these investments should be made at a higher aggregation level. The project leader of Case 2 indicates that the costs of building a suitable mid-office are estimated at about ten million Euro, with a budget of about one million Euro for this complete individual project.

C. **Ensuring privacy, authenticity, and security:** Electronic information exchange is an important enabler for ISD. Because of sensitivity of information however, exchange should be secure. This exchange is not limited to the local participating organizations because some databases are owned at a national level. Therefore, this can hardly be arranged at a local level. Case 4 illustrates that it is also difficult at a national level. Although electronic integrated information exchange was enabled, and security was claimed, the system was already hacked in its first few days of use.

Next to the nine problems in total, there were other problems mentioned as well. However, considering the four cases together, these nine appear to be the most pressing problems out of the 150 reasons for success and failure mentioned in theory. Yet, they do not appear in the same extent in each case. The next section discusses these differences.

## 4 Situations in Which They Are More Probable

Now that an answer is given to the first part of the research question, this section discusses the second part, which is about causes of the two types of problems. This section compares the approaches followed in each of the four cases.

Cases 1 and 2 seem to be most typical for the current way of developing public integrated counters in the Netherlands. As Table 1 shows, these cases have attained relative little integration and electronic communication. These two cases came also with most identified unsolved problems. The relative recent start of the projects could explain this. However, project leaders did not expect that the current approach would indeed lead to better integration and electronic exchange of information. According to them, solutions are needed on a higher organization level.

In the third case less problems were identified, but this project was also relatively unsuccessful in terms of level of integration and electronic communication. Because of the relative autonomous position of participating organizations, almost no problems were mentioned on tasks and responsibilities. Problems on scale were also scarcely mentioned, but this could be explained by the fact that ICT investments and attempts to really integrate were postponed.

In the fourth case all of the above-mentioned problems were identified during the project. This was particularly true in the stadium in which the project shifted from a decentralized to a centralized approach. However, after taking radical measures like changing laws and reorganization of the social security sector, this lead to relative good results on integration and electronic communication, as shown in Table 1.
Considering the different approaches of the four projects, it seems that the current most common approach in the Netherlands comes with most identified unsolved problems. This approach has centralized and decentralized elements in it, which means that none of the organizations on both national and local level has complete responsibility. It seems that as a result of this not much really happens. Although other causes exist, based on these limited number of cases I state that the current mixed approach is a major cause of the problems on integrating service delivery in the Netherlands.

Cases 3 and 4 support this statement. Both a centralized (Case 4) and a decentralized approach (Case 3) lead to fewer identified unsolved problems. In Case 3 few problems were reported, but as mentioned above, the results were relatively limited, partly because of limited resources. Considering the better results and solution of problems in Case 4, it seems that a centralized approach fits better to the needs of ISD. Conceivable reasons for this are that sufficient resources, capacity and authority are present to really change situations and reorganize towards a more integrated way of service delivery.

5 Towards More Centralization?

At first sight the suggestion that ISD requires a more top-down approach may seem outdated and in contrast with the current literature on organizational change and cooperation that favors participation and a bottom-up approach e.g. [5], [14], [23]. Considering the fourth case it appears indeed that forcing parties to cooperate just leads to frustration, stagnation, and a rigid attitude of parties and no results. However, after taking more radical measures like changing laws and redefining parties, it seems to lead to better results at the end. Therefore, it is not the obligation that leads to better results, but the reorganization that takes place. I state that problems exist because the current organization of the Dutch public sector does not fit the needs of ISD. ISD is more likely to succeed when this mismatch is eliminated. This is in accordance with interaction theory, which states that organizational problems should be fixed before introducing systems and that the organization should be in line with these systems [20], [21].

The preference for a top-down and discontinuous approach resembles much of what is said by Hammer and Davenport about Business Process Reengineering as well [6], [12]. Although BPR is about single private organizations and has not been very successful in the public sector [16], [28], it seems that at least some principles of this method are valuable in this particular context.

Although no cases were analyzed in which a centralized approach was taken from the beginning, some experiences in other public electronic information exchange projects indicate that it can be a successful approach. An example is the Kruispuntbank Belgium (enabling electronic information exchange in social security). Compared to the RINIS initiative in the Netherlands – which aims at similar results – it appears that in Belgium a centralized and drastic approach, involving changes in law, has lead to better results years ago than achieved with RINIS at this moment [30].
Of course these results are not a sufficient proof of the value of a centralized approach for ISD in the Netherlands. Therefore more and quantitative research is necessary to explore under which circumstances more centralization is advisable.

Although this paper suggests that a centralized approach has benefits for ISD, it is not a pleading for centralization in general. It is only due to the current relative decentralized approach of ISD in the Netherlands that more centralization is worth considering. This implies that the benefits that Simon relates to centralization – coordination, expertise, and responsibility – at this moment outweigh the costs, including higher workload of higher paid personnel, higher communication costs, and less available information [26].

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References

public employees, thereof 15% on federal level, 40% in the 16 states and 45% all over the communities. Germany counts on a big workforce in the public sector and can in future still count on it due to the mighty unionists of ver.di who clearly exclude major cutoffs, but are backing the modernization process with emphasis. Small and medium companies are discovering that Electronic Government business is much more than a niche and present products which are apt to transform paperwork to electronic processes. German SAP - spread over the globe - has reached to be No. 1 worldwide in offering comprehensive workflow systems which meet the demand of the public sector for reliability. German politicians - who are proud of their national car products - are still somewhat hesitant regarding and fostering export opportunities of German IT services, although the eastern countries are demanding for it in their phase of preparing EU membership. Russia dedicated its version of the D21 initiative, “Electronic Russia” exclusively to Electronic Government [12].

Electronic Government actors in Germany since 2001 begun looking forward to leaving individualistic approaches behind. Now it seems that after being despaired with the growing number of excellent projects that did not produce the necessary spark to the building up of common infrastructures, there are appearing new structures of cooperation and joint strategies.

6 Shared Strategies towards Implementation

In the 2002 Accenture research report, “e-Government Leadership - Realizing the Vision” [3] is perceived that “governments are, albeit slowly, realizing their visions. More importantly, there is a growing recognition that e-Government is not just about technology - but about harnessing technology as just one of the tools to transform the way governments operate”. The report is finding an astonishing jump: “Germany significantly improved its overall ranking from 15th in the 2001 report to 9th this year, and was placed sixth among the Visionary Challengers. Its improved performance reflects a greater emphasis on bringing Government services online and further development of its strong base of mature services in the Revenue and Postal sectors. Following Chancellor Gerhard Schroeder’s unveiling of Germany’s e-Government vision, BundOnline 2005 (9/2000), the Government has implemented a range of measures to accelerate the implementation of its vision. The German Government’s focus is on the modernization of federal administrative structures that will deliver speedy, service-oriented, approachable and cheaper electronic administration by the year 2005. The Government identified 18 pilot projects over to lead its early efforts in delivering online services to citizens and businesses. They include the repayment of student loans, electronic tax declarations, and the processing of customs matters. The public procurement project, Öffentlicher Einkauf Online is intended to combine the authorities’ entire contract award process, from defining their requirements to delivering products”.

The new strategic lines of Electronic Government in Germany are already visible. First of all, Electronic Government must be prevented from budget cuts that are threatening the smaller projects, most of them in communities. Second, the co-operations between cities and between German federal states must be fostered
At the forefront of applied research today is the development of demand driven information systems as a solution for the improvement of citizen services. This line of development includes a number of research challenges. Most important is the question of how to handle the dynamic aspects of demand driven information systems. The service offered as a response to specific questions is not static but operates within a dynamic growing service context. The citizens are looking for a service which will improve the quality of daily life. From the citizens perspective it is of no interest whether the information originates from the private or public sector in arrange of activities including: childcare, education, cultural activities, tourism, sports and health care. The citizen is interested in a service that will help in the specific situation, that is quick and responsive. Current trends in Electronic Government are focused at delivering seamless services for citizens. This has involved Government agencies examining the service from a citizen centric point of view and then building electronic delivery platforms based around the service that the citizen requires. The most obvious manifestation of this approach is in the creation of portals where a number of services are joined together to give the citizen the impression of a holistic service.

What often lies behind the portals is a collection of Local and Central Government departments and/or private institutions / corporations who are feeding information out of their respective silos into the portal. The raised expectations of the citizen of the joined up front end are very often not matched by the service that is delivered. Part of the solution is undoubtedly to re-engineer the back office to match the service paradigms being dictated by the new citizen focused front end. However, it will not be possible to re-engineer the back office to match every joined up service delivery scenario.

The creation of joined up service delivery models also raises expectations in the citizen of a joined up policy between the government actors. There is a common expectation that the joined up front end will be able to deal directly with up to 80% of routine transactions, with the 20% that require expert intervention being routed through to the back office.

The concentration of the tools tends to be on ways of managing the 80% of routine enquiries. Whilst these tools are important for the delivery of a seamless service to the citizens they do not enable either the experts or the policy makers to act in a joined up way. One important aspect of dealing with the more complex enquiries is the ability to join up data held in back office systems. However, data without context is meaningless. Data that can be viewed in context becomes information. Information that is analyzed and can be applied is knowledge. When this knowledge is distilled, organized, stored and redeployed according to specific user needs, then a corporation / organisation is employing Knowledge Management. For these reasons future applied research, for which BRAINCHILD network of excellence intends to design the strategic roadmaps, should target both the development of e-Work Systems as well as organisational knowledge management tools for accomplishing process improvements in public administrations. The alternative approach will be taken into account as well, that is to exploit artificial intelligence techniques to represent bureaucratic rules and procedures. Represented declaratively, bureaucratic rules and procedures, are not concealed in the black box of computer code, but made manageable by other (knowledge base) software tools.

The specific focus in that case will be to address the problem where a client must deal with the rules and procedures of several different agencies simultaneously to solve his/her problem. For political (etc) reasons, it is not always likely the diverse
the development of best practices and technologies that allow public institutions to identify, share, disseminate and create or reuse knowledge & knowledge based systems.

This will form the pedagogical foundation on which a training program for public administration C.K.O.'s is developed. This educational program will benefit from the decade of Knowledge Management experience already acquired in the private sector, but will be specifically tailored to the particularities of the public sector.

BRAINCHILD will focus on the following priority thematic area:

**Strategic Roadmaps for Applied Research Addressing Major Societal and Economic Challenges (1.1.2.i)**

Objectives: To prepare the ground for RTD activities under FP6 by investigating future research challenges, roadmaps and associated implementation models in the domain of e-government/e-governance and e-work. A constituency of RTD stakeholders will be created by the joint networks of Telecities & Elanet.

Challenges will be identified in the following areas:

- Future e-work systems, “e-business” in public administrations, to facilitate seamless joint-up service delivery to the citizens;
- Organisational knowledge management including context- and location-sensitive solutions for acquisition, sharing, trading, and delivery of knowledge (including next generation knowledge management systems and artificial intelligence techniques) to support public sector employees in their roles as seamless joint-up service delivery agents (1.1.2.iv. Knowledge and interface technologies);
- Models and scenarios to shape future policies for a knowledge-based economy in conjunction with the MUTEIS project (socio-economic research on the transition to a knowledge-based economy)

Focus: Activities of the C.K.O. Graduate Course participants will include studying the following aspects:

- Building and strengthening RTD communities that bring together research, business and user organisations with the aim of developing shared visions, scenarios and objectives and facilitating the integration of European research resources to address major future business and work challenges (clusters of IST research projects, national or industrial initiatives in which the C.K.O. Graduate Course participants play a key role themselves);
- Identifying research tasks for both objective-driven and exploratory research. Work should also help to identify and explore the set of complementary activities required to improve RTD impact. These include links to other research frameworks, innovation and take-up actions, training and mobility, standardisation, dissemination activities and the integration of international efforts.

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3 Actions to design & develop next generation knowledge management systems:
- Knowledge management of streaming and archival media resources for the open sharing of content”
- Digital media management, indexing / analysis and search / retrieval in the broadcast domain”
- km3 - Knowledge Monitoring, Maintaining, Mastering”
- Flexible Controls and Learning in Bureaucratic Systems”
3. Front offices are placed in competition. The incentives of the market economy are used to improve service delivery to clients, while avoiding the service delivery paradox.

4. Front office tasks are not only placed in a competitive environment with other governmental front offices but are also distributed over non-governmental organizations that are used to compete in the market.

5. Transactional service delivery tends to be modularised and standardised. The various transaction modules enable (physical and internet) front offices both in the public and private sector to combine a set of modules around the demand patterns (life events) of the client groups they want to serve. This also means that these front offices can shop among different governmental and non-governmental back offices to choose the optimal set of governmental and non-governmental transaction services for their own means. The modularisation eventually can lead to direct one-to-one transactions between the back office organizations and the citizens as government clients.

The five trends have in common that they all lead to an increasing variety of organization models and a fading of the organizational borders. Traditional government organizations exist next to more hybrid forms, while also powers and responsibilities are shared with competing private organizations. The Dutch central government recognizes the trends and the hazards that come with it. To a certain extent they embrace the change and are willing to experiment. The fading of the borders of governmental organizations creates however new challenges for the legislator to guarantee the legitimacy of governmental service transactions. The Dutch government has, for this reason, announced the constitution of a new law that will be designed to facilitate the great variety of new organizational arrangements (Wet Bestuurlijk Maatwerk).

4 Cases of New Organizational Forms in The Netherlands

Three examples of newly developed service delivery concepts in local governments illustrate the existence of the five trends mentioned above.

- **Rental Subsidy by the Ministry of Domestic Housing (VROM):** The department of collective housing is responsible for the allocation of rental subsidy to over one million households in The Netherlands. The development of a completely new modularised and automated transaction process has led to an experiment in which the intake is done not only by local governments alone, but also by real estate brokers and housing corporations as a natural complement to their services around rental housing. The administrative processing of the applications is done by the ministry of VROM. The local governments are put in a position that they have to compete with non-governmental organizations while the centralisation and modularisation of the transaction service enables to profit from economies of scale. (trends 1, 3, 4 and 5).

- **BV Woonnetwerk-Noord:** Woonnetwerk-Noord is an initiative of the City of Groningen with several housing corporations, real estate brokers, project developers, the utility company and the regional and central government. They intend to offer services both through the internet and through a walk-in single window shop in the center of town (trends 1, 4 and 5).
that critically examines, rethinks and redesigns mission product and service processes within a political environment. It achieves dramatic mission performance and gains from multiple customer and stakeholder perspectives. It is a key part of a process management approach for optimal performance that continually evaluates, adjusts, or removes processes.”

The BPR concept argues likewise, that “researcher...and managers... must begin to think of process change as a mediating factor between the IT initiative and economic return” (ibid.cit., p. 46). Thus, information technology is not seen as the sole factor that can lead to a miracle outcome. Instead, process reengineering is. However, IT is given the role as the almighty enabler connecting individuals, work groups and departments. Davenport formulated it as “...to suggest that process designs be developed independently of IS or other enablers is to ignore valuable tools for shaping processes” (p. 50). In Davenport’s work, the impacts from IT on process innovation is grouped in nine categories: *automational* (eliminating human labor from a process), *informational* (capturing process information for purposes of understanding), *sequential* (changing process sequence), *tracking* (closely monitoring process status and objects), *analytical* (improving analysis of information and decision-making), *geographical* (coordinating processes across distances), *integrative* (coordination between tasks and processes), *intellectual* (capturing and distributing intellectual assets), and *disintermediating* (eliminating intermediaries from a process). Although these impacts differ slightly from the findings our research has identified for the public sector, these areas form a solid basis for addressing the use of IS in the service development, fulfillment and logistical functions of the public sector.

Using IS to increase the ongoing innovation of the work processes can for example include the use of computers to capture the work processes in case-handling within the social welfare administration and use these data to carefully examine the work processes. Within this area is also IS that enables one to track case status. It could mean that when Peggy Sue submits an application for housing and/ or subsidy to a public housing authority it will trigger actions by several public agencies. Also, to generate integrative organizations and have dialogue with agencies and various administrative levels of government spread over different geographical locations, IS is a powerful tool. In this area of IS applications, we have also placed forecasting and models. The use of the Internet or Intranet, can help co-working in designing new procedures, without long flights and wasteful commuting time. Finally, knowledge workers in the public sector often need to access same kind of data for designing new work procedures. IS can be used to rationalize the use of the *intellectual assets* in the organization by providing easy access to frequently used data. For example, easy access to the budget for the organization, the current account, documents describing the work processes, etc. can be granted.

IS can also be used to reorganize the service fulfillment. Meeting the citizens’ needs is essential for the public sector, yet, quite often the employee has to choose between several solutions to match the needs specified by the citizen. E- procurement and the *one-stop services* for the citizens are examples of how IS reorganizes service fulfillment. Likewise, *voice communication* is essential to being responsive to the voice of partners. Computer-based voice response mail and answering machines are still rather uncommon in public offices. IS application here, that is virtual components and IS interorganizational communication tools, can eliminate the lack of transparency of each individual’s work. Unfortunately, e-mail is still not an integrated part of
organization of today and tomorrow is not easier to manage than older forms of organizations. On top of that, if all existing work procedures are merely transferred to remote workers without reorganizing the work processes, little would be accomplished and counter productive results may lurk.

Areas beyond the central government, but also local government, semi-governmental and other areas of governmental areas, can benefit from our concept. We must remember that political processes include a wide range of activities, such as limiting student enrollment at universities, hiring personnel, or setting the level of welfare service. These are essential parts of (implementing) general political decisions, and extremely important for the content of the public policy. The one million dollar question is: can IS be applied here along with reorganizing the processes? In other words, can we help graduates from vocational training schools get a job faster by using information technology, and yet not expand the number of state tasks? We believe the answer is yes.

In the public administration we face institutional powers with respect to checks and balances, power distribution and professional training. Whereas the low-risk automation has been ongoing in the public administration during the 1980s and 1990s, we believe that more high-risk re-engineering and paradigm-shifts will appear. Researchers at the US National Academy of Public Administration formulated six starting points for reengineering in the public administration. We have adopted their insights and adjusted their list of factors critical for a successful reengineering in the public sector.

Equally important to setting specific goals, is the rebuilding of the structures to support these goals along with implementing the new IS. This requires that we know the work processes. Although this is the case in a large part of the public sector, the flow of information, the share of information, and the manipulation of the information are just some of the items where our knowledge is in fact quite limited. However, without such knowledge prior to rebuilding the structures, the outcome will depend more on luck than professional responsibility, commitment, and involvement.

Also, the keywords "measurement" and "expectations" should be considered carefully. Within the public sector, it is difficult, but not impossible, to measure the processes (including the input and outcome of them). Likewise, the expectations from the "stakeholders" must be identified and tied to the performance management. This is naturally complicated by the change of a political cabinet after a national election and by the often rigid systems for the customers' to impose their influence on the content of the public service. Nevertheless, our message here is that rebuilding public organization is not successful if the only thing accomplished is increased satisfaction for the employees, or information systems that has a better user interface. The clue is that the expectations have to be known and that the important ones are not the expectations of the employees, whether they are short-term or long-term.

References
Such modification of government processes is only acceptable for citizens, when it presents a uniform picture of the administration. To this end there is need for a well formed structure of the whole e-government process.

A well formed structure allows the administration to focus on the core business and to increasingly let private competition participate in the electronic and face to face services of the administration.

To achieve large acceptance help and information systems taking the special context into account for optimum comfort are crucial elements. These systems can integrate many elements of multimedia assistance, IP-telephony etc. for optimum assistance are just some of the examples.

For the resulting e-government strategy electronic signatures are the underlying principle. Today smart cards form the infrastructure so that citizens have a tool to “electronically present themselves” to the administration. Compatibility and interoperability are to be assured on an as broad as possible level [6].

An appropriate structure allows for gradually introducing electronic procedures both, when accessing the e-government system and when accessing the back office. In some cases the system or back office can even be a simple workstation operated manually interfacing to the defined standards in the first approach.

3 Enabling Change Management

Efficiency is the effect that should be the result. Convenience and comfort as well as security are the tools to reach this goal. By implementing well defined structures and interfaces the tools available can be dynamically adopted.

For practical reasons there is a need for enabling a dynamical change of all parts within the system. This need is fulfilled by well defined interfaces, Security interfaces (signature [7], identification, etc.) and structural interfaces (person record [8], payment record, portal communication ...) have to form part of such systems.
References

Table 1. Voting by method

<table>
<thead>
<tr>
<th>Voting method</th>
<th>Male %</th>
<th>Female %</th>
<th>Total %</th>
<th>Total number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td>66</td>
<td>60</td>
<td>63</td>
<td>678</td>
</tr>
<tr>
<td>Precinct</td>
<td>16</td>
<td>13</td>
<td>14</td>
<td>181</td>
</tr>
<tr>
<td>Mail</td>
<td>19</td>
<td>27</td>
<td>23</td>
<td>244</td>
</tr>
</tbody>
</table>

3.1.3 Reasons for Voting

Voters were asked about their reasons for choosing to vote or not. Table 3 below shows that the most common reason was that they saw it as natural to use their right to vote. Only 12% were interested in the Union's activities. 24% mentioned the Internet voting option as a reason. It should be noted that the voter population is very fluid. Only 28% of those who voted in 2001 and were entitled to vote in the 2000 election also voted then. The Union's hypothesis was that Internet voting would make a positive difference - in a population where interest in the body to be elected is low and participation is not necessarily by routine, an easily accessible vote method may make a difference.

There is indeed some support in the study that the Internet method appealed more to new voters. Dividing voters into two groups depending on whether or not they voted in the previous election shows that voting by the Internet was more common among the new voters, 67% compared to 55% (Table 2).

Table 2. Voting method 2001 compared to participation in the year 2000 election (%)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Internet</td>
<td>55</td>
<td>67</td>
</tr>
<tr>
<td>Precinct</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Mail</td>
<td>30</td>
<td>18</td>
</tr>
</tbody>
</table>

Further, 40% of those who voted 2001 but not 2000 mentioned the Internet option as the reason for voting (Table 3). This should be compared with the corresponding figure for the total population, only 24%.

Table 3. Main reason for voting among those who participated in the 2001 election (%)

<table>
<thead>
<tr>
<th></th>
<th>Interested in the Union</th>
<th>The Internet option</th>
<th>It is natural to vote</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>All voters</td>
<td>12</td>
<td>24</td>
<td>62</td>
<td>4</td>
</tr>
<tr>
<td>Voted 2000</td>
<td>12</td>
<td>12</td>
<td>74</td>
<td>3</td>
</tr>
<tr>
<td>Did not vote 2000</td>
<td>10</td>
<td>40</td>
<td>43</td>
<td>7</td>
</tr>
<tr>
<td>Not entitled 2000</td>
<td>13</td>
<td>19</td>
<td>67</td>
<td>1</td>
</tr>
</tbody>
</table>

For one fourth of the voters, the main reason was that they felt attracted by the Internet voting alternative. For people who participated 2001 but not 2000, there was a greater share that felt this way. Viewed in this perspective, Internet voting could have increased the participation to a considerable extent, especially concerning attracting new voters to the booth.
Obviously this investigation cannot give a clear answer to that. Students are a special group, a student election is not really considered as important as a national or municipal one, and e-voting is not yet an established practice so views may be tentative.

Still, when it comes to privacy issues, or the more particular right to keep your political opinion to yourself, if your political views are disclosed on the Internet it doesn’t really matter if this happens in a small-scale and politically unimportant election or a national, important one. Therefore, the case should represent the views expressed on these issues.

A question that this investigation cannot answer is whether this is an expression of Swedish naïveté (“it doesn’t happen to us in safe Sweden”), or if it is indeed a more profoundly considered active priority. To the support of the latter it may be argued that frequent Internet users do have to make some such prioritization if they are going to be able to use the Internet for shopping and such. Perhaps Internet voting is viewed as just a kind of Internet shopping? On the other hand it appears not unlikely that people in non-democratic countries, and probably young democracies, as well as Swedish immigrants from such countries, would think differently.

Another issue that is not clearly answered by this investigation is whether the answers reflect emerging opinions or residues of old ones. For instance, is the students’ view of how the voting should be done – alone – a residue of the “manual” procedure, which is deep rooted? Are the views of privacy an example of technological naïveté leading to over-optimistic assumptions of the (low) probability that the kind of things that they state “might” happen actually will occur?

The students were experienced technology users - all used computers at work, and most probably also at home, most were their early 20s and thus from a generation which have used computers also in school. They were also experienced Internet users – all have student email addresses, and an estimated 80% have broadband connection in their home. Altogether, it does not seem unfair to say that this indicates that the answers represent new views, those of “pragmatic Internet users” rather than anything else.

The implications of the findings, if they are valid also for a wider population, are that voting procedures will have to change:

1. Internet voting was the priority one voting method, yet turnout did not increase. Perhaps the optimistic view that e-voting will increase turnout should be reformulated: e-voting will become necessary so as to prevent turnout to fall even more.

2. If e-voting from the home is used on a large scale, the idea of the “voting day” will probably have to change, for convenience as well as because of technical issues. Attackers will have to go on for a longer period of time to make any difference, and this will increase the risk/chance of disclosure, and technical problems will not have such a disastrous effect.

3. If e-voting from the home is allowed, the task of guaranteeing privacy at the moment of voting will have to be delegated to the individual voter. The system will have to accept “private sanctity”, that is ideologically and/or psychologically rather than physically enforced privacy. The Umeå experiences indicate that at least this population was up to the ethical standards necessary, but trusting this is probably the hardest challenge for the democratic system.
Nevertheless, the political value chain is a simple and interesting starting point for our present work, and we would use it as it is, knowing that it may deserve some deeper analysis and (re)definition. For our purposes, we take for granted the existence, in the public sector, of a sequence of value creation activities, aimed to the production of what Anderson calls ‘margin’, that we would still call ‘value’. We may better say ‘citizen value’, instead of ‘customer value’. We won’t investigate, in this contribution, on the specific characteristic of the ‘citizen value’ and on the details of the value creation activities description, categorization and sequence.

3 The Value Reconfiguration Process

Taken for granted the existence, in the public administration activities, of several value creation activities, we may point the attention to a process that is becoming increasingly common in several industrial and service sectors, generally called ‘value reconfiguration’, that is well described, for example, by Malone, Yates and Benjamin, in [8] using the framework of the transaction costs theory [17]. According to the authors, ICT may significantly reduce the overall transaction costs, inducing organisations to externalise some activities of the value production process without losing control (value disaggregation). Moreover, an extensive use of Information and Communication Technologies would then allow the integration of third parties value production activities, creating new inter-organizational value configurations. By this value reconfiguration process, the organisation at the final end of the value creation system may develop and manage a wider and more articulated offer, integrating products and services from several other organisations. For example, Seifert and Wimmer [14], describe the value reconfiguration process focusing on the financial industry. They analyse the case study of a German mortgage bank, the Rheinische Hypothekenbank (Rheinhyp), that externalised the division of ‘direct customers’ (mortgages distributed via Internet) to a new joint venture company, ‘Extrahyp’. Extrahyp was involved in the value production activities related to the new distribution channel; moreover, it was used to develop a richer product/service offering: in addition to the basic Rheinhyp mortgages other products and services issued by third parties were introduced. Finally, Extrahyp started issuing IT services to other banks.

Is this concept of value reconfiguration applicable to the public administration activities? The framework used by Malone, Yates and Benjamin [8] is based on Oliver Williamson’s theories, that were later extended by the same author to the governance mechanisms [18], with some important modifications: a significant new concept is that of ‘inefficiencies by design’ (see also [16] for an application). Basically, we should now take into account, besides the classical transaction costs, also the cost of political consensus. In facts, some degree of governance inefficiency may be accepted (and even introduced on purpose) in order to ‘buttress weak political property rights’ ([18], page 199) extending consensus with compromising governance choices. The existence of this efficiency/consensus trade-off should not affect the potential role of ICT as transaction costs reducer and driver of value reconfiguration processes [2][8][10], though some research work should be devoted to deal with the enhanced complexity of the modified framework, with its peculiar aspects, and also to some
dynamically adapted to new business needs or organizational changes. The whole IS
development process may be radically transformed, as foreseen by (Lytyinen et al.
1998): ‘... the distinctions between ‘internal’ and ‘external’ applications have greyed.
The impact of this greying is both the altering and the broadening of design
considerations such as availability, security, support and access for all applications. In
response to these issues new mechanisms and methods of application assembly are
emerging. [...] These are a far cry from the application-oriented, data flow diagram-
mapping, functional design and bespoke application days of yore. Against these changes,
the role of the software developer necessarily changes. Some will manufacture com-
ponents; the majority will facilitate their adaptation, choice, understanding and use’.
(page 248).

5 Preliminary Conclusions:
Exploring the Potential Role of Web Services

What is the potential role of Web services in the value reconfiguration process? John
Hagel III, in [5], writes:

Two and a half years ago, Marc Singer and I wrote ‘Unbundling the Corporation’
[6]. In that article, we described [...] how the Internet would facilitate the unbund-
ling [process], leading to much more tightly focused companies. The rise of the Web
services architecture will not only speed this unbundling but will spur the growth of
the new companies by letting them mobilize a greater range of resources to reach a
broader set of customers (page 113).

Obviously, this statement is only a hypothesis that should be confirmed by evi-
dence and better investigated. If we transpose this hypothesis to the Public Adminis-
tration sector, the peculiar aspects of governance [10][11] and the higher complexity
of the resulting framework would obviously require some additional efforts. The
resulting research agenda would encompass theoretical aspects like transaction cost
theory investigation and application, management aspects like the definition of the
new organisational assets, and applicative aspects like the development of a security
infrastructure to ensure the required level of trust.

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the inter-connection between cable TV network and multi-media broadband telecommunication network. The network structure of CPIP is shown in figure 2.

4.2 Develop the Portal Website for the Municipal Government (http://www.beijing.gov.cn)

Beijing-China project - “the window of the capital” opened in 07/01/1998. As a key component of “Digitalization of Beijing” program, it is a uniform and unique portal for E-GOV, currently linking over 100 websites of different government departments in Beijing. The multi-language versions of the portal are shown as below.

Fig. 2. Network structure of CPIP

Fig. 3. Chinese Simplified Version
The POWER-Light Version: Improving Legal Quality under Time Pressure

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Abstract. The Dutch Tax and Customs Administration conducts a research program Program for an Ontology-based Working Environment for Rules and regulations (POWER). In this research program that was started in 1999 and is sponsored by the European Commission (E-POWER) since September 2001 an ICT-based methodology has been developed that enables the formalization of legal sources and finally the design of legal knowledge-based systems. The full-scale POWER-method however although much less time consuming than normal software design methodologies is still too elaborate especially if we want to apply this method in legal drafting or policy making processes. We therefore created the POWER-light version, a variant of the POWER-method that helps to improve legal quality and can be used with relatively little effort and in short time. Although the POWER-light version lacks many of the advantages of the regular POWER-method (e.g. its verification, simulation and knowledge-based component generation abilities) it offers a first step. The POWER-light approach offers the tools to get the best possible legal quality given the time restrictions.

1 Introduction

One of the goals of E-Government is providing citizens with means to access the governmental body of knowledge. This knowledge is based upon legislation, but also incorporates the business policy and interpretation that is added to the explicit knowledge corpus as it is reflected in the many legal documents like the different laws, regulations, case law etc.

In the POWER research program (Program for an Ontology-based Working Environment for Rules and regulations) a method and different supporting tools have been developed that support the chain of processes from drafting to implementation. Central to the POWER-method is a formalization process in which the legal knowledge sources are captured and translated into formal models, which we refer to as POWER-models (see Van Engers and Glassée 2001). These formal models are the basis for the systems development process (in which we create knowledge-based components) that in many cases follows the modeling process. The POWER-models are also used to detect (potential) defects in the knowledge sources e.g. inconsistencies and circularities (see Spreeuwenberg et al. 2001). The formal models can be used for simulation of the effects of (new) legislation as well.

It is obvious that the initial legal quality has great impact on the quality of the (e-) governmental services that are based upon it. Simulation of legal effects and verification of the (legal) knowledge sources helps to improve legal quality.

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changes have to be made). Detecting these errors prior to subjecting them to a political decision may eliminate the need for these costly corrections.

The second part of the POWER-light method deals with possible defects regarding the system of the legislative text on a material level. Co-operation of different legislative drafters under time and pressure occasionally leads to inconsistencies or redundancies within the text. By trying to model (parts of) the legislative text some of these defects may be detected and consequently corrected before the legislative text is passed.

4.1 The Structural Analysis

Most legislative texts have a distinct (and invariant) structure (the invariance may be law-family dependent). Since legislation drafting is a dynamic process, often executed under time pressure with involvement of a group of people, it is prone to structural defects. These defects may cause serious problems in the operational units of the governments bodies. An example of such structural defect is a reference to a missing member (e.g. a reference to a concept that should be defined in a previous member).

We developed a software tool (Juridical Editor and Working Environment for Legislation drafters, in short JEWEL) that supports the structural analysis of legal documents.

JEWEL supports the detection of the most common structural defects:
Discontinuity in the numbering of structure blocks.
Legal texts are composed of structural elements (such as sections, article, members, sentences etc.). We call these structural elements structure blocks. To be able to refer to these structure blocks legislation drafters use a form of numbering. While creating and updating legislative texts structure-blocks are frequently edited, replaced and/or added. This may result in e.g. a numbering of the structure-blocks that is not continuous, structure-blocks that are placed out of sequence etc. Maintenance of the numbering is part of legislation drafting.

Incorrect use of references.
References in a text that have been heavily modified can be defective in two ways. The first possibility is that a reference refers to a structure-block that no longer exists. This type of reference defect is easy to detect and the automated tool will show that specific reference to be 'empty'. The other type of reference defect is harder to spot. This defect involves references to existing structure-blocks that do not have content relating to the issue addressed by the reference. Although it is possible for analysts to identify a few of these defects, only experts can truly expose these defects.

Inconsistent hierarchy.
Most legislative texts possess a structure that encompass a specific hierarchy. In the co-operation between different departments the use of two different hierarchy-types will diminish the readability of the legislative text and hampers future adjustments. Automated detection is possible, because as a result of the use of two different hierarchy-types, the structure-analysis will not function properly.

Defects found in this part of the analysis are, apart from the content-reference defect, self-apparent and have no need for validation by a legal expert.
References

The chosen CMS is a very powerful tool, but it is not very useful for integrating content of different departments. As the integration was a main part of the conception, it was quite a challenge to solve this problem.

The RedDot-technology which is used to maintain the content is quite simple, but requires a basic understanding of the difference of a web editor and a word processing software. It was another challenge to train the employees according to their knowledge in the use of the RedDot system.

There was a bottle-neck in the RedDot implementation, caused by an internal service provider who was also responsible for the internet presence using the same platform.

To achieve a broad acceptance and usage of the intranet, the content has to be useful for the work process of the employees and, in addition to that, the installation of content has to be very simple. Using the existing CMS was one step in this process, another consisted in providing a general mandatory procedure for evaluating, converting and providing the contents for the intranet. Finally the accessibility was enhanced through usability-studies and corresponding measures.

3 Conclusion

The chosen procedural model has proven itself to be very successful. Due to the active integration of the employees, executives and stakeholders during the requirement analysis, it was possible to achieve consensus among all those involved. In addition, the knowledge resulting from the already existing isolated intranet applications was very useful. During the different phases, the integration of the employees and anticipation of cultural restraints were quite significant. The chosen expansion stage concept proved to be quite advantageous here. Through step-by-step expansion, employees had the opportunity to become familiar with the system and to actively participate in the formation of their own information and communication platform. The next steps of the projects will consist in the continuous expansion of the intranet’s contents as well as the sustainable institutionalisation of intranet related activities within the ministerial administrations.

References

Search: allows a teacher or student to search for a given learning resource according to various criteria and to access the syllabus and document used in a seminars or course.

help & assistance: Provides access to a short introduction to the use of the system, in the future to its user manual.

3.2 Description of the Functions

3.2.1 Registering to the System
This function allows an institution to provide a list of persons belonging to the institution (faculties, students, ...) who are authorised to use the system. The registered user is provided with a user name and password. The system then knows to which institution the user belongs.

As a consequence a registered user of a given institution can be authorised to access the LR put together by a group of educational institutions. For example all Business Schools of a given alliance can decide to allow their faculties to access each others LR.

3.2.2 Searching for a Course Description or a Learning Resource
This function allows a registered user to search for a specific learning resource: for example an introduction to the town accounting plan or a complete course or seminar to a topic at a certain level such as an introductory seminar to the accounting plan of French town. In this latter case the user may wish to search for course descriptions on a given topic, ie their syllabus, describing the course with the topics treated at each class and the associated LR. Two types of search are allowed in UNIVERSAL simple and advanced.

3.2.3 Booking and Delivery of a Learning Resource
This function allows a registered user to book and import a learning resource. At the present stage two types of contracts are available to book a LR: free access or restricted access to the members of a given organisation or association of organisations. The contract is there to provide protection of intellectual property rights and is a key element for decision by potential providers of LR.

3.2.4 Contribute
This function allows a content provider to:
- enter the description of the learning resources he wishes to make accessible.
- define the terms of the contract he wishes to have with potential users
- make the learning resource accessible from his own Universal interoperable server or upload it to the Universal Brokerage Platform (UBP) to make it accessible from the UBP directly.

4 Supporting Educational Activities

One important feature of UNIVERSAL is to provide a multi point IP-based video function called ISABEL. This function allows the teacher to teach to his students face to face and from the distance to other students through video. This service is presently
2 Multi-level Model Dependency Graphs

For several reasons, the depth of information modeling that corresponds to news reports and even official archival records is quite limited (e.g., the top three nodes in Fig.1), with NORC being a notable exception. One of the findings was that, depending on the specific scenario or applied standards, different outcomes can result.

The multiple possible outcomes can be made precise through “deep modeling” using a graph of database mappings as follows. The graph in Fig. 1 is an abstraction of such a graph (i.e., a network of “views” in the database sense). A view is a relational table that is defined by a query expression. Note that views can be layered and defined on top of other views, resulting in a graph of mappings. The overall graph itself defines a (complex) view, mapping the (“raw”) input data to the final result (the President Elect in Fig.1). In general, a deep modeling approach using database views comprises:

1. **relational schemas** for all relevant entities and relationships (in the figure: parameterized entities and attributes)
2. **view definitions** (= database queries) precisely defining the mappings from one schema to another
3. **constraints** (logic formulas) over the relational schemas (to express, e.g., which standards can be applied to which ballot type)

Thus, in the actual graph, nodes correspond to relational views defined on top of other views or base tables. In our abstraction in Fig.1, nodes stand for parameterized entities (boxes) and attributes (ovals), while directed edges denote database mappings, i.e., functions between relational schemas.

Together with the raw data, the graph of database mappings can then be executed as a (complex) database query with a verifiable and non-controversial output. Of course this does not prevent a political controversy from happening, but it can be dealt with at a less superficial and more informed level: In Fig. 1, the scenario (see Appendix E) and/or the specific standard (see Appendix D) being applied to specific sets of ballots, uniquely determine the database tuples in the views above; in particular, the topmost tuple, i.e., which president should be named president elect. Thus, the only degree of freedom and non-determinism that such a graph of mappings allows is in the input data, in this case, the raw ballot data and the scenario/standard to apply.

NORC did everything to guarantee that the raw data was as objective as possible – in particular the coders did not compute the function $f_{\text{classify}}$ themselves, i.e., they did not determine the votes. Instead every coder just described the markings seen and the $f_{\text{classify}}$ determines the vote (under/valid/over) as a function of the standard and the markings on the ballot (see Appendix B). The crux is that those functions can be expressed and implemented as database queries. For example, the edge:

$$f_{\text{electoral vote}}: \text{electors}(S, Ca) \rightarrow \text{president}(Ca)$$

means that whether candidate $Ca$ is elected president is a function (called “electoral vote”) of the electors (of all States $S$) of $Ca$. The latter is itself a function of $\text{votes}(S, Ca)$, i.e., the votes that candidate $Ca$ received in state $S$. Clearly, given the corresponding relational tables, the result of $\text{president}(Ca)$ or $\text{electors}(Ca)$ can be represented as a database query on a table representing the votes per state and candidate ($=\text{votes}(S, Ca)$).
Examples of Undervote ballots for punch-card and optical-scan from the USA Today study.

NORC Codes used to classify each mark on punch-card and optical-scan ballots.

<table>
<thead>
<tr>
<th>Code</th>
<th>Punch-card ballots</th>
<th>Optical-scan ballots</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>blank, no mark seen</td>
<td>00 blank, no mark seen</td>
</tr>
<tr>
<td>1</td>
<td>1-corner of chad detached</td>
<td>11 circled party name</td>
</tr>
<tr>
<td>2</td>
<td>2-corners of chad detached</td>
<td>12 other mark on or near party name</td>
</tr>
<tr>
<td>3</td>
<td>3-corners of chad detached</td>
<td>21 circled candidate name</td>
</tr>
<tr>
<td>4</td>
<td>4-corners of chad detached, clean punch</td>
<td>22 other mark on or near candidate name</td>
</tr>
<tr>
<td>5</td>
<td>dimpled chad, no sunlight</td>
<td>31 arrow/oval mark other than fill: circle, x, check, scribble</td>
</tr>
<tr>
<td>6</td>
<td>dimpled chad, with sunlight</td>
<td>32 other mark near oval/arrow</td>
</tr>
<tr>
<td>7</td>
<td>dimple within chad area, off chad, with or without sunlight</td>
<td>44 arrow/oval filled</td>
</tr>
<tr>
<td>8</td>
<td>dimple on border of chad area, with or without sunlight</td>
<td>88 arrow/oval filled or marked other than fill, then erased or partially erased</td>
</tr>
<tr>
<td>9</td>
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<td>99 negated mark: scribble-through, cross-out, “NO”, and similar</td>
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Appendix C: Harmonized Codes

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There is however much further to go in meeting the demands of citizens and the challenges of knowledge management. Interactive access to information held by governments will require an integrated set of communications networks, which can result from interconnection of the communications channels and the content held on various databases and legacy systems. Offering online services such as the payment of taxes, passport services, or the issuing of certificates are important first steps. The Government of Jamaica, for example, has made some important advances in this area and the Registrar General’s Department now enables citizens to download application forms or birth, death and marriage certificates.

From this preliminary survey there is also an indication that the features relating to presentation and delivery of services still need to be further developed and analyzed. The services identified so far include, for example, provision by the Central Banks of current information on the exchange rates. This information can be seen as very useful to the general population. Several of the central banks show the daily exchange rate with a range of currencies, running along the bottom of the screen. There can be further study as to how this type of information is accessed and used by a selection of business people and users from the general public.

Such features are the beginning of online government services, and to be effective, they must be based on the integration of the various sources of data held by different departments and agencies.

At this time the most important issue is assurance that integration of content and technology provide the basis of "one stop shopping" for government services. Our short or medium term vision shows citizens being able to access a portal to obtain information on government services, to transact business with the government, and to purchase licenses or permits. In the long term the objective will be to reduce the number of departments a citizen has to contact to obtain a required service. Interesting developments are taking place in the websites of the Gateway to the Dominican Republic, the Bahamas, St Kitts Nevis, Belize and the Jamaica Information Service.

The websites studied show that they are developed by individual ministries, and departments without always being linked to a "gateway" to government organizations and their services, which is generally recognizable by the general population. Some governments have used systems of naming URLs to provide some means of easy recognition by the public. The Country Gateway project being implemented by the World Bank globally has two instances in the Caribbean. The portal for the Dominican Republic has been established on the Internet, and in Jamaica a similar project is well advanced.

The development of e-government must involve each ministry department or corporation focusing on its own strategy within its priority areas. An important difference between business and government is that the number of citizens who are likely to use the services. Everyone citizen potentially has interest in accessing government information. The Registrar General’s Department in Jamaica is an example of a site which all citizens are likely to access, as their need for certificates and other documents arises. The portal sites must therefore have the capacity for continuous use by multiple users.

In the context of e-government services in the Caribbean, there will be need for the citizenry to have public access to government portals. Telecentres such as those set up in the public libraries in Jamaica by the Jamaica Library Service and by the National Library of Jamaica provide examples of access points where information on government services can be accessed via the Internet. In addition to providing access to the
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