MANAGING THE E-GOVERNMENT ORGANIZATION

Kuno Schedler and Bernhard Schmidt

ABSTRACT

This article examines the internal and external administrative factors conducive and inhibitive of the development of e-government. It develops a conceptual framework on the basis of existing experiences drawn from administrative reforms. Using data from a large survey of public managers in the German federal government to test guidelines and prescriptions provided in the article, this study indicates that the elements and guidelines developed in our research have had a direct or indirect influence on the development of e-government. Finally, the article indicates further research requirements, as well as consequences for practical project design.

INTRODUCTION

The emergence of electronic government is reaching considerable proportions in the developed world. It would appear that this new reform is consigning everything that went before it to the wastepaper basket of oblivion. This, however, primarily applies to the intensity of the discussions of and the publications about the issue. In the one and a half years alone (1 January 2001 to 31 July 2002), the Center of Excellence for Electronic Government of the University of St. Gallen (URL: www.electronic-government.net) counted forty-one (41) newly published studies which are available on the Internet – and the list is unlikely to be exhaustive. The concrete results of virtually all the empirical studies show that practical development lags distinctly behind the possibilities of e-government that are being discussed and proclaimed. Kinder (2002) surveys "tele-democracy" (the term he uses for E-Government, K.S.) in 31 European cities covering 14 states and shows that progressive city administrations in Europe are early adopters of tele-democracy with a diffusion rate of 72 per cent. He admits, however, that the selection of the cities that were examined displays a considerable bias: it was conducted on the basis of assumed best practice. Moon (2002) looked into the rhetoric and reality of e-government at the municipal level in the United States and concludes that e-government has been adopted by many municipal governments, but remains at an early stage and has not yielded many of the expected outcomes that the rhetoric of e-government has promised.

However, these publications are among the few that have been written by academics to date. A large majority have either been published by governments (thus, for instance, the e-government strategy of the US government, which is of considerable quality; US Executive Office 2002, or also UK Cabinet Office 2000) or by consultancy firms, which both have a vital interest in a positive development of e-government (thus, for example, Andersen 2002; Accenture 2002; Cap Gemini Ernst & Young 2001, and many others). The studies mainly focus on the websites of nations (e.g. Jupp 2000; Gartner Group 2001), Länder (e.g. Deloitte Research 2000) and communities (Kinder 2002; Moon 2002). Supranational organisations, too, are examining the development on the Internet, among them the European Commission (2002) and the United Nations in cooperation

with the American Society for Public Administration (2002). The world now has a picture of e-government as encountered by citizens on the Internet, which has been studied and confirmed several times over.

However, little is written about the interrelations between the implementation of e-government and the existing conditions in an administrative organisation although this is likely to be one of the most essential success elements for e-government. Ultimately, the same people who create value for the public in their administration in the traditional manner must now also help support the e-government revolution. In this article, we examine the internal and external administrative factors, which are conducive and inhibitive of the development of e-government. We develop a conceptual framework on the basis of existing experiences drawn from administrative reforms. With the help of a broadly based interview among public managers in the German federal government, we show that the elements that we have developed have a direct or indirect influence on the development of e-government. Finally, we deduce further research requirements, as well as consequences for practical project design.

THE CONCEPTUAL FRAMEWORK

The implementation of e-government is a management task that must be assessed in the overall context of an organisation and its environment. For the purposes of this study, we assumed that there are a number of factors, which exert a relevant influence on the implementation of e-government. Our theoretical concept in this respect was similar to that which backs the e-government strategy of the US government (US Executive Office, 2002): the opportunities of e-government result primarily from contact with the citizens, whereas the obstacles are predominantly placed inside the administration. The strategy paper is based on 71 interviews that a task force conducted with more than 150 senior government officials and discovers five barriers for implementation: agency culture, lack of federal architecture, trust, resources, and stakeholder resistance (p. 11). All these factors reappear in our study, but in a slightly different order.

The administrative organisation, which is supposed to introduce e-government, is placed in a more or less problematic environment. The perception of this environment as an obstacle to the implementation by the interviewees has an influence on the status of the development of e-government (hypothesis 1). The sub-factors that characterise this environment are described below.

The soft factors of administrative organisation, such as inspiring leadership, trust and motivation, are absolutely central to the implementation of e-government. For this reason, they, too, have an influence on the development status of e-government (hypothesis 2).

The third influence factor to be examined is the organisational condition of the unit, which is characterised by various enablers: incentives to change, existing structures and processes, a clear strategy of service orientation, as well as the preparation of the organisation by means of modernisation. The latter was called quality management since this is the term that fits the German situation. These enablers were also thought to have an influence on the development status of e-government (hypothesis 3).

The political environment is typical of a public institution. On the basis of many interviews, we were able to assume that political involvement was of significance for the progress of an e-government project (hypothesis 4).

Fifthly, it was clear from the start that these variables would probably show correlations but that the influence of the different factors would not necessarily have to be direct. It is conceivable; for instance, those political activities only have an indirect impact on e-government, namely through management activities (enablers). Something similar applies to the problems that can be perceived externally and which may be directly related to the problems that can be seen to result from a lack of soft factors – a comparison between challenges arising from systems in the environment with the possibilities of the organisation's own system. In other words: we suspected that the interviewees only identified a change in the environment as a problem when the soft factors of their own organisations did not appear to have been prepared for them.

Finally, there are many indications that there is a reciprocal influence between an organisation's soft factors and the management activities that lead to enablers. Management activities such as say, the introduction of a quality management system, change perception through the soft factors of a unit, but it can also be expected that managers adapt their activities to the perceived existing soft factors of their units.

Exhibit 1: Correlation of Mega-Factors (Pearson)

	Management activities	Soft factors	Political involvement	Externals	E-Government implementation
Management activities	1 N=554				
Soft factors	-.412** N=543	1			
Political involvement	.379** N=523	-.193** N=519	1		
Externals	-.255** N=543	.568** N=543	-.089* N=519	1	
E-government implementation	.463** N=553	-.230** N=546	.181** N=524	-156** N=546	1 N=564

* Correlation is significant at the 0.05 level.

** Correlation is significant at the 0.01 level.

Source: Authors, 2003.

This resulted in a theoretical correlation model for e-government implementation as represented in Exhibit 1. This model now had to be checked. Before we move into the empirical part of this paper, we have to describe the factors that were used and their substance.

Management activities (enablers)

Schmidt (2003) shows that the management of an administrative unit has a relevant influence on the development of e-government in that it becomes active in three different fields of intervention: strategy, in the sense of setting objectives and the course of the project; the establishment of structures, such as the organisation of structures and processes, but also rules and incentives; and capacity building in the sense of extending the organisation's potential possibilities of action. These activities are not conducted in isolation from each other but should be adapted to each other as finely as possible. It must be the goal of management to act in all these areas in as integral and consistent a manner as possible (also Schedler and Proeller, 2000). As the fourth element in this heuristic model, administrative culture also has an effect on the development of e-government; this, however, can only be established by management to a certain extent. For this study, the factors were not defined according to these intervention areas but according to packages of measures, which are supposed to have an effect on all these areas.

Quality management: to what extent have quality management measures already been implemented and are actually taken seriously by the staff? This factor is regarded as an indication that the organisation has already dealt with elements of modernisation and that it has also reflected on the notion of quality.

Incentives: what is the extent of the incentives for members of staff who are actively committed to change within the framework of e-government? The assumption is that the management will achieve two goals by creating such incentives: firstly, the staff will be motivated by the incentives, and secondly, the management will be emitting a clear signal that it supports the project.

Project structures: to what extent are the structures of the project and of the unit suitable for the implementation of e-government? This is the factor through which the management's activities in the design of the organisation can be integrated into the study.

Service orientation: to what extent is service orientation a relevant component of management strategic statements? Since we assume that during the early implementation stage, e-government primarily aims at an improvement of the services provided for customers, it was mainly against the yardstick of this indicator that the management's strategic activities were assessed and integrated.

Soft factors

To what extent does a lack soft factors such as motivation, the readiness to assume responsibility, trust, or a type of leadership that is personally experienced as inspiring constitute an obstacle to e-government? It was assumed for the purposes of the interview that in the somewhat bureaucratic administrative culture of the test object, the

German federal administration, these soft factors would be unlikely to become an issue before they were discovered to be lacking with regard to the e-government project, thus jeopardising it.

Political involvement

To what extent is the e-government project supported by the political level of leadership that the interviewees considered being relevant (i.e. as a rule, in their own ministries)? This factor was supposed to determine the particular significance of politics in the case of public institutions that carry out IT projects. Ingraham (1997) examined the role of politicians in the administrative reforms in the United Kingdom, Australia, New Zealand and the United States and discovered that "the role of politics and political leadership is linked to the various models of reform. More comprehensive and strategic efforts require great initial political leadership and will, but incremental efforts require more continuous political involvement." It has remained unclear to us, up to a point; to what extent the e-government reforms in Germany could be described as, "comprehensive and strategic efforts". If the reverse conclusion can be drawn, namely that clearly recognisable political leadership points to comprehensiveness and strategic significance, then our study might provide indications with regard to this question.

Externals

Finally we assumed that there was a whole range of external restraints, which could not be influenced by the public managers interviewed. Here, too, the selection was conducted in such a way that the questions referred to such external obstacles to the implementation of e-government in order to make the interviewees more aware of these factors.

Resources: to what extent is a lack of resources an obstacle to the implementation of e-government? Here, the focus was primarily on a lack of finances, a lack of personnel, and on the technical infrastructure.

External inhibitive factors: to what extent are factors inhibitive which, from the administration manager's point of view, must be solved by third parties, such as politics? These are security and confidentiality complexes, legal barriers, and a lack of harmonisation with Länder and communities. The latter are typical of this level of government and constantly present in a federal state such as Germany. Wollmann (2000) and Reichard (2002) point out that Germany has a strongly regulation-oriented administrative culture. Against this background, this factor is likely to have an interesting influence on the German federal administration.

External partners: what effect does (a lack of) cooperation with external partners have on the implementation of e-government? Here, the costs and the quality of cooperation with external consultants were taken into account. Saint-Martin (1998) examined the role played by management consultants during administrative reform in Britain and Canada and discovered that although external consultants have an increasing significance for the design of the post-bureaucratic control model, this still does not result in a uniformity of solutions, from which it may be inferred that public managers' attitude towards consultants is ambivalent: consultants may be necessary, but you do not let them foist standard solutions on you.

Market assessment: to what extent is the e-government market ready for the project in the first place, and what kind of impact does it have on implementation? We assumed that the interviewees would find customer enquiries and the question of the digital divide particularly significant.

Perceived quality of the reform concept: to what extent does the quality of the project constitutes an obstacle to the implementation of e-government? Public managers maintain that project quality cannot be influenced but falls within the competence of the project leaders. These items were therefore integrated into the externals.

Exhibit 2: Factors for the Examination Model

Factor designation	Outline of the subject matter. The interviewees experience their environment in terms of the characteristics described below.
Soft factors SOFTFACT	- Personally inspiring leadership - Personnel's readiness to assume responsibility - Trust within the organisation - Motivation of staff - Image of the administration
Service orientation (as a proclaimed strategy) SERVIORI	- Service orientation as the objective of reform efforts - Clear ideas for an improvement of service orientation - Service has priority within the eGov reform - Ambitious goals exist for the development of the agency
Political involvement POLINVOL	- Effects of the political steering level with regard to eGov implementation - Identification of the political steering level with the eGov initiative - Personal commitment of the political steering level
Project structures PROJSTRU	- Supporting structures and processes - Optimal distribution of the responsibilities for the realization of eGov - Consistent involvement of the administrative management with eGov - Integration of staff into the development and design of eGov applications
Quality management QUALMANA	- Credible quality standards and success criteria - Personnel action in accordance with quality standards - Use of modern leadership methods - Good cooperation within the unit

Resources (the lack of which is considered an inhibitive factor)	-	High costs, problems with the financing of consultants
	-	General budget scarcity
	-	High costs of eGov
RESOURC	-	Lack of personnel
	-	Lack of technical infrastructure
Incentives	-	Material incentives
	-	Recognition by the management
INCENTIV	-	Recognition by colleagues
External inhibitive factors	-	Security and confidentiality problems
	-	Legal barriers
EXTFACT	-	Lack of harmonisation with Länder and communities
External partners as a problematic factor	-	Dependence on external partners
	-	Political preconditions prevent cooperation with external partners
EXTPART	-	Internal administrative resistance to external partners
Market assessment	-	Lack of demand
	-	Digital divide
MARKASS		
Perceived quality of the reform concept	-	Uncertainty regarding feasibility
	-	Substantial concept deficiencies
QUALCONC		
Project development	-	Duration of the presence of the topic in the organisation
PROJDEVE	-	Development status in relation to other units of the administration
Internal use of eGov solutions	-	Intensity of the use of existing IT applications (10 items)
INTUSE		

Source: Authors, 2003.

EMPIRICAL FINDINGS : THE UNIT EXAMINED

German federal administration

This first part of the study design outlines the reasons why the German federal administration was chosen as a research object. In this context, the current e-government initiative BundOnline2005 is described.

The German federal administration with all its ministries and subordinate federal agencies was selected as a research object from a wide range of administrative entities. The main reasons for this are the current intensive efforts made there in the field of e-government. According to the benchmarking of the United Nations and ASPA (2002), Germany occupied sixth place worldwide with regard to e-government development at the time when this study was conducted, i.e. in 2001. It could therefore be assumed that recognisable experiences with the reform process were already in place.

The current BundOnline2005 programme aims to offer all the federal services on-line by the year 2005, while also creating a new form of service quality at the same time (Schily, 2001 and Zypries 2001). Since at present, comparable national initiatives at the highest levels are taking place in many countries, the study acquires a relevance that crosses borders. In the German-speaking area, this includes the Guichet Virtual or Virtual Counter in Switzerland (www.admin.ch) and the Amtshelfer or Official Helper (www.help.gv.at) in Austria. In connection with BundOnline2005, and deserving special mention, is the British e-government initiative "UK-online", which also aims to offer all the services on-line by the year 2005 and which also concentrates on customer orientation (UK Cabinet Office 1999 and 2000, to be accessed through www.uk-online.gov.uk). Initiatives are also being pursued by Canada (www.canada.gc.ca), which intends to be the world leader in the field of e-government by the end of 2003, and by the American government with www.firstgov.gov.

The top administrative level, or for federalist countries the federal level, is playing an important part in the implementation of e-government. Apart from the present international topicality of this issue, this is a further reason why this level deserves a closer look. The top level always sets the pace for development. It provides bearings, and it is a model for subordinate units. If an e-government solution should involve integrated portals in the final stages of its development, then the significance of the top level increases since it must coordinate the integration of subordinate administrative levels. In this context, it sets standards with regard to services and technology. The importance of a jointly coordinated course of action has been recognised. Thus, according to a study by Mies (Mies, 2000: 8), 72% of German cities have called for a national e-government strategy.

However, the service aspect is also relevant to the federal administration. Renner (2002: 13) finally identified 376 services which were suitable for provision on the Internet and which were provided by 130 ministries and agencies. They include customs declarations, the approval of pesticides, the allocation of research funds, the granting of patents, the processing of applications, and services provided by the Federal Statistical Office. There are both external and internal customers for these services in all the cases. It therefore makes sense for the federal administration to direct the focus of their reform processes, and particularly of the initiative BundOnline2005, on an improvement of

service quality. The federal administration examined in this study includes ministries and all their subordinate agencies, which in turn consist of superior and intermediate government agencies and other institutions.

BundOnline2005 e-government initiative

The BundOnline2005 e-government initiative is also directed at the federal administration as a whole. It is still relatively new. In the context of a programme entitled Aktivierender Staat or Activating State, the Federal Chancellor announced the initiative on 18 September 2000 with the goal of making all the services capable of provision on the Internet available on-line by 2005. This goal is supposed to be attained by a task force with the name of "Modern State – Modern Administration", which is part of the Federal Ministry of Internal Affairs. At its core, the initiative consists of 18 model projects and the services portal of the Federal Republic (www.bund.de) with the form server, which came on stream in March 2002. The aim is a standardised supply of services, with the focus on user-friendliness and quality. Uniform technical standards are supposed to be developed for this purpose.

An implementation plan was presented in December 2001 (German Ministry of Internal Affairs, 2001). This plan comprises a prioritisation of services in the form of a rollout plan, proposals for the use of technical components and for the determination of the necessary financial resources. It is intended that a central coordination of activities should be insured within the framework of the implementation plan in order to achieve an integrated overall architecture and to increase the efficiency of the programme through the central provision of basic components.

The schedule for the introduction of the services is a function of the time at which the basic components are made available and of the duration of special and specialised applications. More than 60% of the services will thus only go on-line in the years after 2003. At the time of this study, only 21 services were fully available on-line. The overall funding required from the project for the years 2002-2005 amounts to some € 1.65 billion. About 90% of these resources will only be required in the years 2003-2005. In 2005, this will result in recurring costs of € 300 million per annum (German Ministry of Internal Affairs: 46). Conversely, it is expected that the system will generate savings to the tune of € 400 million. However, the € 100 million will only be saved if the applications are used adequately (Renner, 2002: 13). In purely financial terms, the project does not appear very attractive at this time. Nonetheless, it is making continuous progress, as the fact that a "form server" being opened on schedule has proved.

Random sample and returns

In the federal ministries, questionnaires were sent to all the heads of departments and sub-departments, i.e. to ministerial directors and assistant directors, as well as to the heads of the budget, personnel, IT and organisation sections. In the federal administration, questionnaires were sent to the agency heads and their deputies and again to the heads of the budget, personnel, IT and organisation sections. This resulted in a population of 1274 questionnaires to be answered. Of these, 400 were sent to the ministries, and the remaining 874 to the government agencies. These figures constitute the basis for the determination of the return rates. They were the result of an adjustment to the overall number of 1515 questionnaires, which were sent out originally.

The ministries returned 160 questionnaires, which corresponds to a return rate of 40%. Considering the interviewees' status and the long time it took to fill in the questionnaire (about one hour), this result must be regarded as very positive. The return rate from the government agencies is also high: with 407 questionnaires sent back, it amounts to 46.6%. This is remarkable in that, like in the ministries, the questionnaires had been sent to managerial staff, which had not been provided with any incentives apart from the feedback from this study. No follow-up was staged to increase the return rate. Both areas taken together returned 567 questionnaires, which is tantamount to a rate of 44.5%.[1]

The return rate according to institutions amounted to 87.7%, which must be regarded as very good indeed. 20 out of the 163 agencies that had been contacted did not respond. The return rate thus covers a wide range of authorities. Nonetheless it must be assumed that the agencies that did not respond occupy a particular position with regard to the issue of e-government. Thus a slight bias must be expected, which, however, is unlikely to be of any consequence for the questions under review. After all, our study examines the individual perceptions of those people who are concerned with e-government.

METHODOLOGY

The research design consists of a quantitative, written main part and a qualitative part with a directed interview, which constitutes the substantial basis for the generation of the questionnaires.

In this context, the semi-structured interviews enabled us to make crucial progress in the demarcation of problem areas and the identification of the questions, which were of topical relevance. This is valuable because in the rather new field of research, which is constituted by e-government, only a few valid concepts and constructs have been developed on which research work can be based. In addition, the directed interviews served to test categories for the questionnaires to be drawn up, and to test their range. Moreover, the interviews turned out to be very helpful for the right choice of verbal expression in the questionnaires. At the start-up stage of the interviews, the interviewees were asked questions about current problems, their chances of success, and general experiences. After this beginning, concrete questions were asked according to the interview manual.

The main part of the interview was conducted by regular mail. The questionnaires were designed on the basis of the directed interviews. To begin with, groups of interviewees were established in detail. Then the relevant clusters of issues were defined, and corresponding hypotheses were generated, whose substance is covered by the questionnaires. The questionnaires consisted of direct and indirect questions, depending on individual issues. They largely extend to closed questions with the option "Other". Closed questions were primarily made possible by the extensive analytical work that had been done in advance. Since a number of interviewees are regarded as experts with wide-ranging experience, open categories enabled them to add supplementary information.

In the part that is relevant to this study, the interview exclusively worked with closed questions that could be answered in a five-grade Likert scale. One example of this is the grades "unimportant", "of little importance", "important", "very important" and

"particularly important", or the series of "not", "little", "medium", "very" and "particularly". The Likert data are treated as interval-scaled data, as is customary in social sciences. The data were therefore evaluated according to the corresponding method.

Independent variables

For the evaluation of the data, the individual items from the questionnaires, which had been subsumed into certain factors, were tested by means of a factor analysis. The factors were named according to the conceptual bases described above. Reliabilities turned out to be good overall (Exhibit 3). Generally, the evaluation was conducted with the statistics software SPSS, as well as with EQS.

Dependent variable

Development status of e-government in the German federal administration

Exhibit 3: Factors of the Model[2]

Factors	α	Items	M	Stdd	Mega-factors
QUALMANA	.77	4	2.89	0.64	Management activities (enablers)
INCENTIV	.69	3	2.28	0.72	
PROJSTRU	.79	5	2.76	0.73	
SERVIORI	.77	4	3.51	0.73	
SOFTFACT	.85	7	2.94	0.74	Soft factors
POLINVOL	.84	3	3.64	0.77	Political involvement
RESOURC	.65	5	3.36	0.67	Externals
EXTFACT	.56	3	3.05	0.74	(Cannot be influenced by management)
MARKASS	.55	2	2.57	0.85	
EXTPART	.63	3	2.49	0.68	
QUALCONC	.72	2	2.92	0.79	
PROJDEVE	.66	2	3.41	0.92	E-government implementation
INTUSE	.81	9	2.69	0.60	(Dependent variable)
EXTCLUST	N/A.	N/A.	2.93	1.03	

Source: Authors, 2003.

To be able to represent the development status of e-government in the German federal administration, we had to carry out a characterisation of the various ministries and agencies. To start with, this was done according to purely organisational features. Depending on the range of services that are provided, the way in which they are provided, and existing contacts, the differences between the institutions are quite considerable in part. For this reason, all the organisations interviewed were asked questions as to the characteristics of these and other influence factors with regard to the development of e-government. A central position was occupied by the grading of the institutions according to the extent of existing e-government applications for the improvement of internal and external service quality. Institutions were graded according to their e-government facilities directed at the outside and according to the utilisation intensity of internal applications.

Having been characterised with regard to activities and contacts with external correspondents, the agencies then had to be graded according to their actual e-government development status. For this purpose, existing measures for external service improvement with the support of electronic media were registered separately from the questionnaire in order to determine a variable that was independent of the interviewees' subjective judgement. In addition to this, the externally directed applications of the first three levels of the most frequently used development grid were examined for each agency: information, communication, and transaction.

Agencies Internet presence was checked on the basis of the information available on the homepage. A distinction was made between basic information and comprehensive information with detailed instructions and explicit offers of help for citizens. Moreover, it was determined whether there were additional features such as multi-lingualism, newsletters and search functions, and whether users were able to register on the page. The availability of information also extends to the possibility of access to electronic archives and documents, and to an increase in transparency.

With regard to communication, it was established whether advice was given, and letters were answered, by e-mail. In addition, it was determined whether form downloads were available for part or the whole range of services. By transaction, we understood the filling-in of forms on-line. On-line orders for information materials were also regarded as a transaction, provided it was not simply carried out by e-mail. Here, too, it was determined whether the offer covered part or the whole range of services. Payment transactions were logged separately.

Apart from these core applications, the agencies were additionally analysed with regard to further services. This concerned the Nachvollzug des Bearbeitungsstandes on the Internet, and opinion-forming instruments such as fora and chats or ballot instruments. Questions were asked as to the availability of special offers for private enterprises, such as separate access channels on the homepage and the availability of specific information and contacts. This survey grid was used to examine a total of 18 applications related to external service quality. The number of applications that actually existed was determined for each of the 162 agencies that returned the questionnaire. On the basis of the assumption that the applications were of equal value, the agencies were graded according to this number.[3]

This resulted in a pattern of five groups, each with increasing degrees of intensity. With the help of the interviewees' answers as a control variable, this was used to develop a scale of five with as equal a distribution as possible, which can be assumed to be interval-scaled in analogy with a Likert scale. The group characteristics can be outlined as follows:

Authorities of Group 1 do not have any electronic interface to the outside, or only a single website without a great deal of additional information. In individual cases, these authorities can be contacted by e-mail but do not have a website of their own.

Authorities of Group 2 mostly offer a combination of a simple website and communication. Some authorities in this group are slightly further developed: their websites offer more extensive information or very simple form downloads for individual services.

Authorities of Group 3 usually present a comprehensive range of information on their homepage and also offer additional functions. In addition, they often provide access to archives and more extensive download sections. Communication is also possible as a rule; a dedicated contact area has often already been set up for this.

In Group 4, authorities possess all the functions, which are not yet fully available in Group 3. In addition, the authorities in this group frequently offer transactions. Although this chiefly concerns simple orders or forms, the basic prerequisites are in place.

Group 5 offers additional functions such as chats and fora or specific offers for private enterprises.

The application of this grid results in a grading of institutions according to normal frequency distribution. This independent ranking of authorities was allocated to the individual responses, which made it possible for a statistical evaluation to be carried out. In order to be able to have a better view of the development status, two additional assessments by the interviewees were taken into account: the utilisation intensity of internal applications, as well as the relative progress of the project.

For the purpose of assessing utilisation intensity (the INTUSE factor), various internally directed e-government applications were assessed by managerial staff with regard to their utilisation. The result may be described as follows: applications are predominantly used for purposes of communication. On average, communication by e-mail and the transmission of in-house information through an intranet receive the highest rating. Already a significantly lower degree of utilisation was registered for applications such as the Internet as a research instrument, planning instruments, document management and knowledge databases. Applications of the higher development levels of e-government had hardly been used at all. Transactions, advanced training platforms and ballot instruments are not widely used.

Finally, the relative progress of the project (PROJDEVE) was examined on the basis of the interviewees' assessment of the duration of the presence of the topic in their units and of the development status in relation to comparable units. For the later evaluation,

these three factors were subsumed in a group of independent variables in order to be able to paint a balanced picture.

RESULTS

As expected, all the independent variables display a highly significant correlation with the dependent variable, i.e. the development status of e-government (correlation analysis in the Appendix). However, there are quite big differences in correlation strengths. The strongest correlation is shown by management activities (.463**), the weakest by externals (-.156**). For this reason, we were led to suspect that individual factors do not have a direct effect on the dependent variable, but only an indirect one. Following up this suspicion, we examined the interdependencies with a structural equation model based on EQS. In comparison with the theoretical assumptions, some of the results came as a surprise, but were plausible. On the basis of the co-variances of the various factors, the following was found:

Hypothesis 1, according to which there is a direct nexus between the environment presenting itself as an obstacle and the development status of e-government, must be clearly rejected. No connection of any kind could be proved. It became clear, too, that political involvement does not have any direct influence on the development status of e-government. Hypothesis 4 must also be rejected. Finally, there was no evidence of a connection between the soft factors and the implementation status (hypothesis 2), which would have led to a reliable confirmation of the model in EQS. For this reason, these direct connections were given up.

However, hypothesis 3 was confirmed with a high correlation (.73*), which means that the totality of enablers displays a significant connection with the development status of e-government in a unit. Enablers are the above-mentioned results of preceding management activities in the unit under review. According to the results of this study, the type of management activities that were undertaken in preparation for e-government to make the organisation fit for the impending change are directly decisive.

Hypothesis 5, which assumes that there is a connection between the factors, was also confirmed. It was shown that there is a significant nexus between political involvement and the enablers, i.e. the management activities (0.36*). This result is perfectly plausible since the interviewees were people in managerial positions in the German federal administration, who naturally always have to keep an eye on supporting their political superiors in their activities. Since politicians, however, are unlikely to interfere directly with the operative business of e-government, their influence on the development status of the project is indirect: they are part of the frame of reference for the management of the administration.

The soft factors display a similarly pronounced correlation. In the EQS model, they are reported with a negative co-variance (-0.39*) since the questions concerned a lack of soft factors, which was regarded as an obstacle to e-government implementation. Thus the soft factors are conducive to the development of management activities but have no direct impact on e-government development itself (or rather, a lack of soft factors does not directly inhibit the implementation of e-government). These results come as rather a surprise, but are plausible. By way of a caveat, it must be said, however, that the above

cross-sectional data will not allow for a prediction of causalities. The model only refers to the point in time at which the interview was conducted.

Exhibit 4: EQS Model with Correlations for E-government Implementation Status
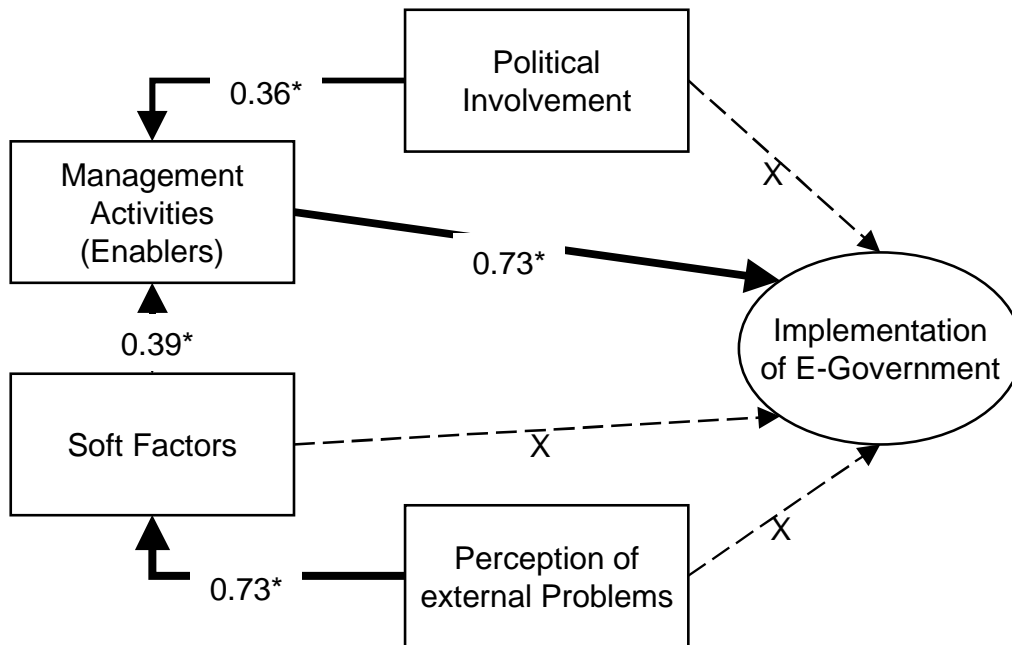
Chi sq.=235.46 P=0.00 CFI=0.91
used software: EQS

CONCLUSIONS

This study reveals the interconnections as they are experienced subjectively by the public managers interviewed. It contrasts this subjective perception with the development status of e-government in their various organisations, which we verified objectively. The strength of the study is in the broad sweep of interviewees, i.e., public managers in the German federal administration, which at the time of the interview occupied sixth place in the world with respect to the implementation of e-government. On the other hand, it must be considered a weakness that at this point in time, we merely have one (albeit broadly based) set of cross-sectional data, which hardly allow for conclusions to be drawn in respect of impact thrusts. Moreover, the effects on public manager perceptions are limited.

Nonetheless, the available data still clearly indicate that the development status of e-government implementation correlates with all the independently defined mega-factors. However, a direct causal nexus can only be noted between the management activities and the development status of e-government. The other mega-factors would appear to exert their influence indirectly, i.e. through the management activities. In this study, we

defined the following activities which a public manager is able to initiate within his organisation: a programme for quality management; the establishment of incentive structures, and particularly non-monetary incentives); the preparation of structures and processes for the implementation of e-government; and a clear shift of the organisation in the direction of service orientation, which we consider to be a strategic activity. All in all, this boils down to increasing organisational fitness for e-government.

How does this prompt a public manager to train his organisation to become fit for e-government? For one thing, his perception of the soft factors in the organisation has a significant influence: commitment on the part of the management, motivation of personnel, and a culture that is well disposed towards technology. The cross-sectional analysis does not reveal, however, to what extent these soft factors were shaped by the management activities themselves. The perception of the soft factors is contrasted with the directly correlated perception of external problems, which cannot be influenced. This combination results in the public managers' subjective assessment of their organisations' ability to solve problems, which evidently provides a crucial stimulus for management activities. As a whole, we gained the impression that public managers who are aware of their role as managers' accord correspondingly more weight to these issues and thus exert a positive influence on the implementation of e-government.

Public administration has been markedly hostile to reform for decades. However, e-government may be part of a new reform generation based on technology that has achieved a recognisable degree of success. Future research should thus increasingly focus on factors that are conducive or inhibitive of reform to develop more and better general propositions about the reformability of public administration. In this context, data on the usefulness of league tables about government websites is limited and should be researched.

Kuno Schedler, Professor of Public Management and Director, Institute of Public Services and Tourism, University of St. Gallen, Switzerland: Kuno.Schedler@unisg.ch.

Bernhard Schmidt, Ph.D., McKinsey & Co., Berlin, Germany. Dr. Schmidt co-authored this article when he served as Scientific Assistant, Institute of Public Services and Tourism, University of St. Gallen, Switzerland.

NOTES

[1] These 567 returned questionnaires constitute the random sample (n=567) for the observations that follow below. The n is smaller for certain questions which were not answered by all the interviewees. The overall answer was not removed from the sample because of this. On account of the large size of the questionnaire, this would not have made sense because too much valid information would have been surrendered. Additional distortions from questions that were not answered need only be expected in individual cases. The influence of a failure to respond will be discussed from case to case.

[ii] Extraction method: principal component analysis; rotation method: Varimax with Kaiser normalisation.

[iii] If the applications were to be weighted, this would depend too much on the authorities' task profiles. For this reason, they are not weighted. The grading process thus reflects each institution's skills that may be relevant for an improvement of service quality.

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APPENDIX

Exhibit 6: Return Rate, Ministries

Ministries	
Population: public managers in federal ministries	489
Adjustment, including the exclusion of the Federal Ministry of Justice from the population	-89
Population: interviewees in ministries	400
Returns from ministries without Ministry of Justice	160
Return rate from ministries	40.0 %

Source: Authors, 2003.

Exhibit 7: Return Rate, Government Agencies

Government agencies	
Population: public managers in federal government agencies	1026
Adjustment	-152
Population: interviewees in government agencies	874
Returns from government agencies	407
Return rate from government agencies	46.6 %

Source: Authors, 2003.

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