

Electronic Government in Germany – a key future prospect, but expectations are exaggerated

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1. Introduction

Modern society is subject to fundamental processes of change at an accelerating pace, which is creating many new challenges also for the governance system of the Federal Republic of Germany. New information technologies (IT) are rated among the most important instruments to tackle the challenges. In order to make use of this potential the German federal government has supported the development and the introduction of e-government applications¹ with various initiatives and highly endowed promotion programs. For projects in the area of the initiative Bund Online 2005 alone, more than 1.6 billion euros have been granted.

Therefore, it is not surprising that many hopes are projected onto the concept of e-government. However, the breadth of expectations connected with this approach is more akin to wishful thinking than rational analysis. In spite of several interesting projects and some respectable results especially on the level of local self-government, it is foreseeable that many hopes related to the new paradigm of e-government will not be fulfilled. If these exaggerated expectations should some day change to disappointment and frustration this could obstruct the continuation of important reform processes and, in the worst case, lead to an overall discrediting of this approach.

This analysis presents a balancing viewpoint to the presently dominant euphoria without losing sight of the potentials of e-government which are centrally important for the development of the German governance system and the realignment of its interfaces to society. Particularly, it will be demonstrated that the potentials can only fully be tapped when expectations are scaled back and the advancement of e-government is regarded chiefly as a strategic investment for the future. Two arguments substantiate this claim and will constitute the center of discussion in the following sections. The first refers to the effects of conflicting goals, as they have been observed in other contexts of modernization. The second argument points to problems with the diffusion of innovations, i.e. to resistances to and bottlenecks with regard to the realization of e-government applications resulting from the breadth and complexity of the required innovations. Some of the presented findings and diagnoses are probably not specific to Germany and can most likely be transferred to other developed societies and their governance systems. Before dealing with these specific aspects, some fundamental terms, circumstances, and findings have to be discussed.

¹ Introductions to the history, current state of affairs and perspectives of e-government, which essentially originated in the United States, can be found e. g. at Subhash Bhatnagar (2004), Laura Forlano (2004, 34 ff), Jane E. Fountain (2001), G. David Garson, (2004, 2 ff), Martin Hagen (2004, 211 ff) along with Harold C. Relyea and Henry B. Hogue (2004, 16 ff).

2. E-government according to the Memorandum on e-government

More than 70 experts from different segments of German society support and have contributed to the Memorandum on e-government, where e-government is defined as “the execution of processes of public opinion formation, decision-making, and performance of functions in politics, state, and administration with the intensive use of information technology” (GI and VDE, 2000, 3).

The Memorandum was published in the year 2000 and has since then been advocated by a large number of people. This particular definition of e-government can therefore be regarded as clearly dominating in the discussion on e-government in Germany.

The sociological point of reference of this model is the metaphor of the digital information society as a society, in which purpose-oriented knowledge and the new IT as the means of its supply possesses great significance (Steinbicker, 2001; Webster, 2002). In public perception the transition to this stage is particularly connected with the rapidly increasing number of Internet users. The Internet actually does not form the only, but probably the most important, technical basis for the information explosion in everyday life, which was initiated in the USA in the early nineties and then spread to all other developed countries including the Federal Republic of Germany.

According to the Memorandum the fields of application of e-government can be distinguished as electronic administration, electronic democracy, and the reorganization of structures and processes.²

- Electronic administration stands for IT-supported completion of processes at the interface of administration and administrative clientele (citizens, enterprises), at the interface of administration and its business partners (e.g. in the area of bidding and procurement) as well as in common task fulfillment such as in public-private partnership projects.
- Electronic democracy or electronic participation describes the inclusion of citizens in political decision-making, which can be divided into the stages of reception of political information, political discourse as an alignment of the different perceptions of problems and interests, as well as the completion of the decision-making process by way of political decisions.
- Organizational reengineering – i.e. the reorganization of tasks, organizational structures and, in particular, work processes – form another central aspect of e-government, because effective electronic administration and electronic participation are unimaginable without the preceding organizational innovations. It wouldn't, for instance, make any sense to create a modern electronic interface between an administration and its environment by means of an Internet portal, when it is backed by an outdated organization that is not equipped to manage it.

In the fields of electronic administration and electronic participation, IT most importantly offers potentials as a means of communication and cooperation. However, in the framework of organizational reengineering, IT must predominantly be activated as an enabler for new organizational concepts, i.e. be made productive as organizational resource.

At the same time, e-government applications can be realized with different qualities.³ Aside from the three fields of application, three forms of application can also be distinguished:

² This and the following esp. according to Olaf Winkel (2004, 126).

³ This and the following esp. according to Olaf Winkel (2004, 127 ff).

digital information hosting, network-based communication, and online transactions. At the information level, applications are limited to the digital provision of relevant knowledge without a feedback opportunity. At the communication level, a feedback possibility is added to the mere provision of information and, on the transactional level, processes are handled continuously and in a legally binding way on the basis of digital networks. It is increasingly becoming accepted that it makes sense to speak of e-government only where a specific amount of online transactions are actually offered.

In Germany there is wide agreement that all citizens should benefit from the advantages of e-government, not merely those with Internet access. In order to counteract a digital divide of the administrations' clienteles, "integrated access management" has been proposed which can rely "on the four main channels, Internet, call centre, mobile access, and civic offices located in the neighborhood" (GI and VDE, 2000, 13).

3. Efforts to promote e-government in Germany

The governance system in Germany is divided into the federal, state, and local level (Bund, Länder, Kommunen). The federal republic consists of sixteen states, which all in all are comprised of 300 districts and more than 13,000 municipalities. Because local authorities are in charge of most government services and the local community is the area where most contacts take place between politics, administration, and citizens, the development of e-government chiefly originated at the local level. But, in the late nineties, the federal government took over the leading role.

A first significant step on the federal level to facilitate the introduction of IT-solutions in the public sector was the 1997 ratification of the law on electronic signatures in attempt to provide a legal framework for an infrastructure that can be used for many different types of online transactions (Fricke, 2002, 49 ff). Since December 1999, all e-government-activities of the federal government are part of a drive for an overall modernization of public administration. This reform, called Modern State – Modern Administration (Die Bundesregierung, 1999; Federal Ministry of the Interior, 2004c), includes, besides the promotion of IT-solutions, a strong focus on New Public Management.

In September 2000, the federal government launched the initiative Bund Online 2005 (Die Bundesregierung, 2001; Federal Ministry of the Interior, 2004a; Kleindieck, 2002, 118 ff), in an effort to provide all Internet-enabled services of the federal administration online by 2005. These services are, among other things, comprised of applications on the transactional level, e. g. when dealing with special taxation procedures for employers and employees, with student scholarships, or with registrations in the area of intellectual property and patents. The initiative Bund Online 2005 has been endowed with 1,65 billion euros and is coordinated by the Federal Ministry of the Interior. It has developed some basic components that are supposed to benefit all federal agencies: a file server for official forms, an e-payment platform, online information about data security measures, a content-management system, a call center, and a federal Internet portal. Furthermore, an e-government handbook is available online, which aims to cover all aspects of e-government including managerial, technical, and legal aspects. A standards architecture (SAGA) has also been drafted and made available to all levels of the governance system. Additionally, a platform for e-procurement was developed that is supposed to be used by all German agencies.

In June 2003, the Bund Online 2005 initiative was complemented by the initiative Deutschland Online (Federal Ministry of the Interior, 2004b; Wewer, 2004, 347 ff) in order

to intensify cooperation and coordination between different levels of the German governance system. The core aim of this initiative is to promote integrated electronic services inside of and across all levels of administration as well as to create the required standards and infrastructures.

Two other recent federal e-government projects are attracting great interest, namely truck Toll Collect and the Virtual Job Market (Virtueller Arbeitsmarkt). Toll Collect (Bundesamt für Güterverkehr, 2005; Toll Collect, 2005) is a GPS-based system for collecting road toll for trucks using the German autobahn. Commissioned by the German federal government and developed by a consortium of the German companies Siemens and Deutsche Telekom, as well the French company Cofiroute, the Toll Collect system has been in service since January 2005. The Virtual Job Market project (Bundesagentur für Arbeit, 2003; Jander, 2002, 36) is operated by the Federal Labor Agency (Bundesagentur für Arbeit), the German agency responsible for providing unemployment benefits and for matching jobs to unemployed persons. The main goal of this project is to connect the agencies' online job database to the internal systems of the agency, in order to create a new and effective tool for matching jobs to seekers of employment.

At the state level some more or less comprehensive e-government strategies have been developed. Generally, the state governments aim to cooperate closely with the cities, towns, and districts. Some examples for activities on the state level:⁴

- The Bavarian approach for e-government, focusing on providing user-friendly access and on developing efficient and uniform administrative procedures. All suitable services are supposed to be delivered electronically on the basis of interoperable technical components. The goals of this concept include setting up a central electronic signpost in order to help citizens to find their way to the needed agency and to offer electronic forms.
- In Lower Saxony, government leaders and heads of administration want to gain more experience with comprehensive e-government solutions by implementing several pilot projects, which include the use of cross-linking applications such as e-payment, distribution of electronic signatures to special target groups of heavy users of administrative services, and long-term archival of electronic documents.
- North Rhine Westphalia, the German state with the largest population, has defined ten pilot projects in order to identify and verify solutions for basic issues in areas such as IT-security and data protection. The projects range from online inquiries into real estate registers to electronic procurement on the transactional level.
- The e-government agenda of Rhineland Palatine is focusing on four core areas: connecting all agencies by improving the state Intranet, implementing a uniform document-management system and an electronic workflow system, promoting the use of electronic signatures, and improving the state Internet information portal.

For many years, the federal and state administrations have cooperated in developing uniform software applications for the German internal revenue offices, which are connected in part to the federal or state governments, respectively. These activities are coordinated by a company called Fiscus (Bruhn, 2005).

⁴ This and the following esp. according to Martin Eifert (2004, 122 ff), but compare also at August W. Scheer (2003, 89 ff).

Because the innovation potential of the German cities, towns and districts varies considerably, the status of e-government on the local level is characterized by a strong heterogeneity concerning the progress towards electronic administration, electronic democracy and a successful reshaping of organizational structures and procedures (Eifert, 2004, 124). Besides general information, the core group of digital services commonly offered on the local level comprises registration of residents, car licensing, building permits, numerous cultural services, enquiries to various registers, and e-procurement.

An obstacle with an effect even more on municipalities than on the federal and the state levels is the heterogeneous IT-landscape (Gernert, 2000, 47 ff). Different offices are developing and operating comparable systems and applications at the same time. For example, dozens of different software solutions are used every year for approximately 4 million registrations and re-registrations. The same can be said for the 15 million vehicle registrations that are performed with a host of different IT-systems.

In 1998, the Federal Ministry of Economics and Labor launched the Media@komm initiative (Eifert, 2004, 120; Federal Ministry of Economics and Labor, 2000; Grabow and Siegfried, 2002, 151 ff) in order to support German cities, towns, and districts in dealing with the above mentioned problems, and particularly to foster the use of electronic signatures at the local level. More than 130 local administrations took part in an open competition, and in 1999, three prize-winners, the cities of Bremen, Esslingen, and Nürnberg, were each awarded about 8 million euros to be used for implementing their concepts. In the course of Media@komm, a broad variety of solutions for electronic business and for secure legal communication between local authorities have been developed and tested. Examples include the area of electronic planning, online reminder procedures, services for electronic registration information and the electronic awarding of contracts, and online libraries. Moreover, the Online Services Computer Interface (OSCI) was developed for secure and trusted data exchange.

In 2004, the Media@komm initiative was succeeded by the campaign Media@komm-Transfer (Federal Ministry of Economics and Labor 2004a, 2004b), expediting the development of e-government on the basis of experiences and findings gained from its predecessor, but also from other appropriate activities. Under this framework, selected municipalities regarded as highly innovative and ambitious in e-government, have teamed-up in a national transfer-network in order to standardize innovation schemes. One project of the network, located in both Berlin and Magdeburg, is dealing with mobile electronic administration, which can be regarded as a special quality of e-government. Currently, there are attempts to establish Media@komm-Transfer also across borders in cooperation with countries such as Poland and Russia.

D 21 (Ahrens, 2005; Alpmann and Eder, 2002, 101 ff) represents a very large German public-private partnership created in 1999 in order to prepare Germany for a successful future in the electronic age. More than 400 representatives of enterprises, associations, political parties, political institutions, and other organizations are currently participating, including global players such as AOL, BMW, IBM, Microsoft, and Siemens. They are assisted by an advisory board chaired by the Chancellor of the Federal Republic of Germany. One of the major projects supported by the initiative D 21 is the implementation of the Electronic Health Card (Federal Ministry of Health and Social Security, 2004; Initiative D 21, 2004). This microprocessor card is anticipated to universally replace the current health insurance cards in Germany and is to become a part of a highly complex IT-

based health-infrastructure connecting patients, medical doctors, dentists, hospitals, pharmacies, and health insurance companies.

E-government projects that aim at changing the decision-making structures of German democracy have been playing only a very minor role until now. Occasionally, there have been experiments with electronic elections, e. g. in June 2001 at the election of the council of young citizens (Jugendgemeinderatswahl) in Fellbach, at the appointment of the personnel committee (Personalratswahl) in the State Office for Data Processing and Statistics of Brandenburg in January 2002, and at the election of the student assembly (Studentenparlament) of the University of Osnabrück in February 2002 (Otten, 2002, 10 ff; Will, 2002, 23 ff). Especially on the local level, several electronic elections and discourses without a legally binding character were conducted in recent years. (Ewert et al., 2003, 227 ff; Märker and Trénel, 2003, 7 ff). The Media@komm and Media@komm-Transfer initiatives have also contributed to this point (Hagedorn, 2003, 365 ff). In the summer of 2001, the so-called E-Democracy-Project of the German Federal Parliament (Bundestag) was started. From the beginning, this project dealt less with particularly supporting democratic action as an advantage for the citizenry, but rather with academic efforts exploring the potentials of e-government in Germany (Bizer 2003, 211 ff; Der Deutsche Bundestag, 2001).

4. High expectations

With e-government and the new IT as its catalyst in Germany and beyond, the connected spectrum of expectations is broad.⁵ The following catalog contains only the most significant points:

- improvements of effectiveness: the impact of political-administrative action is to be optimized. This may be realized through the setup of IT-based information and reporting systems for administrative governance or by means of Internet-based integration of citizens into working on current societal problems.
- efficiency gains: the cost-effectiveness of political-administrative action is to be increased. On the one hand, this is to be realized by shifting the administrative front office onto the PCs of citizens, and on the other hand particularly by elimination of discontinuities between different media and the optimization of production chains by utilizing IT as an organizational means in and between administrations.
- improvements of citizen service: the administration is to better account for citizen demands through new forms of service delivery enabled by using IT as a communicative, cooperative, and organizational means. In this context the issue of non-stop government is also being addressed which seeks to commit the public administration to provide 24-hour service, or the issue of one-stop government which aims to provide administrative services from a single source, providing digital services to citizens via live-event portals. These portals are characterized by bundling many different services, anticipating individual life events such as birth, school enrollment,

⁵ Further information concerning the broad spectrum of expectations connected with e-government in Germany are available esp. at Initiative D 21 (2002), but compare also at Bertelsmann Stiftung (2002), Stefan Friedrichs et al. (2002, 12 ff), Horst Geschka (2001, 123 ff), Franz-Reinhard Habbel (2002, 49 ff), Stephan Jansen and Birger Priddat (2001, 15 ff, 91 ff), Willy Landsberg (2002, 20 ff), Wolfgang Naujokat and Bernd Eufinger (2002, 46 ff), Olaf Winkel (2001, 10 ff) and Brigitte Zypries (2002, 43 ff).

military service, commencing employment, unemployment, self-employment, house building, and retirement.

- expansion of information access to political matters and improvement of the transparency of political-administrative actions: government Internet portals shall not only provide the citizenry with the raw data about, for instance, social conditions or government performance, but also with information about current political processes.
- enhancements to responsiveness regarding governance action: especially the feedback relations between elected representatives and the represented should be intensified.
- improvements in the area of public participation: network communications should not only be used to include the citizenry increasingly into democratic processes at the levels of information and discourse, but also to enlist it more strongly than before on the level of political decision-making.
- enhancements of legitimacy and acceptance: the enrichment of public participation enabled by e-government is also seen as an instrument to increase the legitimacy and acceptance of political-administrative action.
- improvement of work conditions: in the interest of administrative staff, fragmented functions are to be integrated under the framework of organizational reengineering in order to achieve effects connected with such concepts as job enlargement and job enrichment.
- safeguarding the lawfulness of administrative action: in a period where law-oriented administration is increasingly being criticized for its high use of resources and its bureaucratic rigidity, new IT is regarded as a basis for more effective and efficient ways to maintain legality. At the center of attention are the opportunities provided by audit systems, document management systems, and workflow management systems as means for control and documentation of administrative procedures.

Overall, the impression mounts that the new paradigm of e-government in German scientific and political discourse is connected with all objectives which, in the past, have been attempted to be realized with a host of different modernization approaches. Examples are the introduction of the bureaucratic model as a central German administrative innovation in the 19th century, the Bürgeramt (citizen bureau) and the New Control Model as effective leading ideas of administrative reforms of the late 20th century, and finally the approaches of public governance and civic community, which have just gained supporters in Germany in the recent past. It is hardly possible to find any objective in these concepts which isn't also claimed by a protagonist of e-government.

Comprehensive expectations are also expressed in the Memorandum on e-government. Among other things it says:

“Multi-faceted goals are connected with administrative modernization in the long term. It concerns not only the improvements of efficiency and/or productivity, but also a number of further goals, such as effectiveness, transparency, rendering of account, or system stability and reliability in exigency ... When fully viewing the target system of administration, the large potentials of e-government can be seen. Beyond the increases of efficiency, all desirable goals regarding the modernization of state and administration can be promoted. This can be a benefit for the effectiveness and transparency regarding the performance of public functions and, especially, for the promotion of democratic cooperation. Additionally, the foundations of state actions can be secured ... Also, the service quality of state actions can be improved, and it must be particularly stressed that electronic government does not automatically imply a reduction of human contact in the interaction between citizens and administration ... On the other hand, the administration produces services of a completely different character ... Pertaining hereunto,

almost dramatic possibilities result for improvements of the organization of these services. Much disposition activity can be omitted, the necessary legal and fact-related information is more easily reachable (GI and VDE, 2000, 7).

The fact that the spectrum of expectations connected with e-government is broader than hopes cherished in connection with any other modernization model, gives leverage to the first argument supporting the thesis that expectations connected with this paradigm in Germany are exaggerated.

5. The first argument: conflicting goals

Whoever assumes that one reform model can promise equally thorough improvements in all aspects such as effectiveness, efficiency, citizen service, citizen participation, employee friendliness etc., ignores a substantial point: the relations between these goals feature partially conflicting aims on a systemic level and, thus, can not be resolved completely.⁶

This applies, for example, to the relationship between participation and efficiency or the relationship between legality and efficiency. The conflict potential between the relationship of participation and efficiency is well-known: Whosoever wants more participation, must consider that participation procedures can cause high expenditures of time and money. And neither can it be excluded that participatory decision-making processes lead to solutions that are expensive. Tensions between legality and efficiency result from the fact that safeguarding the lawfulness of administrative action requires different mechanisms, which are connected with high expenditures. Examples are the principle of hierarchical control, which is expensive because it simply doubles work, or the principles of file keeping and documentation in writing, which imply comprehensive documentation procedures, or the necessity to maintain the availability of legal advice for all phases of administrative activity, which isn't free of charge either.

And that's not quite yet the whole picture. Additionally, these goals can compete in specific contexts with the interests of different participants. Thus, the goal of citizen participation can interfere with the power interests of professional politicians. And the goal of a more efficient utilization of funds can conflict with the interest of securing resources in administrative bureaucracies.

When looking more closely at the chances and limitations of the new IT, it can clearly be seen that – and this is a central point – they cannot dissolve the basic conflicts described above. They merely create new leeway, which can be used in concrete problem cases to find solutions, which more successfully than before lift the different rationalities and interests to a common denominator, but which will always remain sub-optimal with regard to individual goals.

And yet another circumstance has problematic effects in this context: the tendency that conflicting aims do not decrease with the dissemination of the new IT but actually intensify. Because where traditional technical restrictions lose their impact, specific goals can be pursued more effectively than in the past. But if consistent use is made of this possibility,

⁶ The circumstance that public action is always subjected to different systems of reference was already mentioned by Claus Offe in the mid 1970's (Offe, 1974, 344). But compare also at Fred Argy (2004, 22 ff) and James Q. Wilson (1989, esp. 72 ff).

although the preferred goal stands in a competition relationship to other goals, then retrogression must be accepted in other places.⁷

More accurately, thus, one must assume that the progressive digitization of interactive relations in the triangle of politics, administration, and society not only will lead to an increase of room for maneuver for the reconciliation of conflicting aims, but also to an increase of the conflicting aims themselves to be solved within this leeway. As much as these aspects are underestimated, the concomitant potentials of e-government are overrated.

6. The second argument: problems with the diffusion of innovations

The second argument supporting the thesis represented here results from the consideration that the potentials of e-government are not only smaller than is generally assumed because of the problems arising from conflicting goals, but in addition can be realized only under specific conditions and often only at high cost, which is not always taken into consideration. A broad range of parameters is to be considered in this regard, which determine the success or failure of respective projects. It is assumed here that the most important factors for the diffusion of e-government applications are found in aspects of technology, organization, knowledge, culture, law, finance, benefit, management, conceptual integration, and politics.⁸

The technical aspect

In order to realize e-government, it must first be ensured that the administrative clientele – particularly citizens and enterprises – have IT-equipment or at least IT-access at their disposal. Naturally, the same applies to administrative employees and politicians, who are supposed to be included in appropriate projects. Likewise, a transaction infrastructure must be installed, on basis of which those involved can cooperate. The components of such an infrastructure are a system for the organization of sending and receiving, electronic data interchange for the handling of business procedures, a digital signature to ensure the authenticity of communication partners and the integrity of conveyed messages, a confidentiality function for privacy protection, a payment system for the collection of fees receivable for administrative services, and a firewall, which, among other things, offers protection from viruses and worms. Finally, the interoperability of the technical procedures, which are used at the interfaces of governance system and society, particularly in the front and back offices of the administration, must be ensured. This requires the integration of different technical systems or rather the elimination of discontinuity between different media. The problem emerging in this regard: the efforts and expenditures connected with warranting the specified technical preconditions are immense, and often underestimated.

The organizational aspect

With regard to organization it must again be emphasized that electronic administration and electronic participation can, for reasons already mentioned, be realized only where

⁷ It is to be stated here that the virtual world of the networks differs from the so-called "real" world also in that the prevailing structure relationship is no more an "as-well-as", but rather an "either-or". This could be noted for the first time in the so-called "crypto controversy", which emanated from the United States in 1993 and spread to Europe and other parts of the world in the mid 1990's (Winkel, 2003, 185 ff).

⁸ Comparable catalogues of relevant parameters can be found at Bertelsmann Stiftung (2002b), Bundesministerium für Wirtschaft und Arbeit (2002), Stuart Culbertson (2004, 59 ff), Jörn von Lucke (2002, 68 ff) and Peter Weill (2004, 25 ff).

organizational structures have been rearranged in the necessary manner. This can only succeed when they are aligned with the new rationalization paradigms which have spread in the economy over the last twenty years (Piore and Sable, 1984; Womack et al., 1991; Rayport and Sviokla, 1995, 75 ff). Here, a break with the Tayloristic model of production in centralistic structures and a redirection to diversified quality production in teamwork structures could be perceived.

A related problem is the enormous challenge represented by the integration and optimization of structures and procedures, which already failed in Germany in many places during the introduction of instruments of New Public Management, or the New Control Model as its German variant. The Sunday speeches of some politicians and the bold drafts of their consultants create the impression that this challenge is now to be overcome under the new label of the e-government simply in passing, as it were.

The knowledge aspect

Accordingly, it is emphasized that all who are involved with the introduction of e-government – citizens, enterprises, administrative employees, and politicians – must acquire new technical knowledge. But that's not yet a complete description of the specific needs for learning and qualification arising in this framework. When their personal computer becomes the administrative front office, citizens must at the very least attain a minimal threshold of administrative competence. Certainly, even the best Internet portal will hardly help, if its users have not the slightest idea of the functions, structures, and processes of the organizations backing it. To become fit for e-government, administrative employees must not solely acquire new technical skills, but also specialized operative knowledge to handle changed and enriched tasks resulting from organizational reengineering. Strengthening the social competencies of administrative employees is another key factor when it comes to guiding citizens in their use of the new instruments or when using these on their behalf. Finally, the learning processes of politicians who want to get involved in e-government need to extend beyond the mere acquisition of technical knowledge. Continuous contact with better informed and interconnected citizens demands more specialized knowledge and social competence from politicians.

This need for new qualification arises in a situation where politics, administration, citizens, and enterprises have already been facing new requirements for quite some time, which necessitate additional learning. This further complicates overcoming the problems on the knowledge level. An administrative employee, who has in the past been involved in the introduction of instruments of the New Control Model, thus, is now being requested to actively participate in the processes for the implementation of e-government and to acquire the necessary abilities and skills without delay. In such cases, it is not sufficient to simply assume or postulate a willingness to be trained. Rather, this readiness must be directly stimulated, promoted, and rewarded. Finally, it should be given special attention to the fact that the openness and willingness of people to acquire new abilities and skills presuppose special preconditions on the cultural level, which cannot be created and called up just at any time.

The cultural aspect

On the cultural level, not only the question of the willingness to learn is determined but also the more general question is decided whether citizens, enterprises, administrative employees, and politicians are ready to adopt the necessary innovations in the context of e-government. The development of trust represents one of the most important aspects here,

because an untrusted socio-technical system can fulfill the assigned social functions just as poorly as could a system, which is actually not reliable. However, it has long been known that cultural adaptations cannot keep up the pace of such technical innovations as are on center-stage during the introduction of e-government.⁹ Cultural change needs time, especially in this area, and definitely cannot simply be mandated.

The legal aspect

It is obvious that the legal aspects of the adoption of e-government must also be considered. Pragmatic steps include the reduction of legal barriers, such as the requirement of appearing in person and simultaneously presenting an identity card or a personal signature. When legal obstacles complicate the workflow, the new IT equally loses power as a rationalization instrument. Although the German signature law provides for replacing of personal signatures with qualified digital signatures, this is presently not permissible in many cases because of opposing area-specific regulations, e.g. in the registrations department.

It is not only the inertia of traditional structures and cultures which makes the solution of such problems a difficult venture, but especially not yet knowing much about the limitations of what can be realized by means of digital signatures. Should confidentiality protection unexpectedly be organized by way of a public key infrastructure for digital signatures, the resulting intricate complexity may actually suggest the maintenance of traditional forms of identification and legally binding exchange of messages at least in specific local contexts.

The financial aspect

Obviously, citizens and enterprises who want to communicate and cooperate directly with the public administration from their personal computer can only do this if they have the necessary financial means at their disposal. Sufficient financial means are necessary also on the part of the political and administrative institutions planning to operate e-government. Usually this will mean that not only their own financial resources, but also outside funding have to be available. Especially the experiences gained in German local self-government show that e-government projects of larger extents succeeded above all, when additional funds could be obtained from suitable advancement programs. But despite the efforts of the government, grants even for IT-projects are not easily available in light of the long standing public budget difficulties in Germany.

Frequent references to possibilities for public-private partnerships are useless if they remain unspecific. Occasionally such solutions are realized when setting up and operating portals. They appear much less practical, however, with organizational reengineering and with the vertical and horizontal integration of technical systems in this respect – which is precisely the area with the greatest costs.

The benefit aspect

A recommendation that can be found over and over says that win-win situations should be created by the implementation of e-government applications. This implies the intention to ensure that citizens, enterprises, administrations and politics, as well as service providers, hardware and software suppliers, and all others who are involved, can benefit from the innovations. Naturally, this idea is captivating in its simplicity and straightforwardness,

⁹ As observed by William Ogburn already in the 1950's in his theory of the Cultural Lag (Ogburn, 1957, 167 ff).

because, indeed, it can be assumed that all sides will be willing to invest in e-government if all sides can expect guaranteed returns.

Unfortunately, this idea also has blemishes: most gravely, it is generally not possible for administrations to enter into a win situation, except from parts of the so-called G2B-sector (i.e. the area, within which administrations and enterprises cooperate). This already results from the circumstance that e-government can almost always only exist as an additional service, i.e. that the conventional operation must be maintained in central fields of activity not only during, but also after the introduction of respective applications. And it is also uncertain whether politicians will, after the introduction of tools facilitating electronic democracy, see themselves in a winning position, when they are exposed to close citizen contact between elections, too – especially when they will be dealing with particularly competent, well-informed citizens, who are ready to spread their impressions gained in exchanges with their political representatives via the Internet at any time and into all directions. Essentially, the entire range of problems addressed above under the heading of conflicting goals could also apply here.

The management aspect

E-government projects are not self-actuating. They require differentiated planning, control and coordination. Therefore, professional project management is necessary. With more comprehensive projects a business plan should also be present. This point is not as trivial as it may appear at first sight. The absence of suitable project management ranks among the factors that caused e-government projects in Germany to fail in the past.

The aspect of conceptual integration

Conceptual standards are also needed for the implementation of e-government applications because the introduction of the new IT is not a purpose for itself but a means to an end. Concepts are necessary particularly with regard to the future state of the governance system and society, and about how to get there. With regard to the administration, this question is connected with the term administrative reform. Therefore, a linkage of e-government to administrative reform is definitely required on the conceptual level. Likewise, the links between the New Control Model and e-government, which both aim, among other things, towards the modernization of organizational structures and procedures, can hardly be overlooked.

Scientific reflection offers only little assistance in this regard because until today, by and large, it did not deliver a systematic linkage between these areas. This could conceivably back a development where different trends meet quite unplanned and with more or less coincidental results. Furthermore, it cannot be ruled out that the cluelessness, which manifested after the New Control Model reforms in many places in Germany, may be transferred to the realm of e-government.

The political aspect

The development of strategic goals for reform projects that integrate aspects of e-government with aspects of other modernization models is without a doubt much less a question of scientific reflection than a question of political guidance. Particularly, members of parliaments and local representative bodies are called upon when the respective goals and priorities are determined. Whether they will always be equal to this responsibility, however,

must be doubted, for the democratically legitimized political decision-makers have often enough lacked strategic orientation in other modernization contexts.

A further task assigned to politics in this endeavor is the initiation and ongoing support of innovation processes, which includes demanding as well as rewarding successes. The latter represents a contribution that should particularly be made by governments and administrative management. Ongoing political support of e-government is, last but not least, required because of the high demand for funding and in light of the circumstance that the emergence of win-win situations can be expected only in exceptional cases. The emerging difficulty here lies the issues of administrative reform and concomitantly of e-government representing topics, which are not at all media-suited, and therefore rarely politically pursued in a consistent and continuous manner.

7. Current developments

In light of the discussed problems and challenges it is not surprising that there were both positive and negative experiences within the realm of e-government in Germany. A comprehensive account and analysis of these experiences is lacking up to now. However, some of the highlights and some illustrative instances can be manifested and presented here.

A selection of encouraging experiences:

- The central goal of the initiative Bund Online 2005, to provide all Internet-enabled services of the federal administration online, has been fully attained. By February 2005, more than 340 services of federal government departments were available on the Internet.
- Several projects conducted within the Bund Online 2005 framework have been operating very successfully. This includes such projects as the electronic processing of payments for federal student loans (Bafög) by means of a document management system (FAVORIT) in the Federal Administration Agency (Bundesverwaltungsamt), fully embodying the vision of a paperless office. Another example is a procedure for submitting electronic tax returns (ELSTER), which has been widely accepted by tax payers and tax advisors alike.
- The federal Internet portal and the e-government handbook, which was published and is continuously updated online by the Department for Security in Information Technology (Bundesamt für Sicherheit in der Informationstechnik), have a firm standing in the German e-government environment.
- Without a doubt, the Media@komm initiative has provided valuable experiences, which continue to be extremely important for the development of e-government on the local level.
- With regard to the development of suitable software solutions under the Media@komm framework, the city of Bremen has proven particularly innovative. The public-private enterprise Bremen Online Services (BOS) has implemented procedures that integrate electronic signatures with electronic payments. By and large, there are more than 100 customized applications presently in operation. Various solutions developed and tested in Bremen are now utilized by other states and cities.
- Toll Collect has been running almost flawlessly since its launch in January 2005, which cannot be taken for granted when dealing with such a complex system. What's more,

there are increasing prospects that this technology may actually be exported in the near future.

- Regarding the introduction of the Electronic Health Card, successful first experiences were obtained in several pilot projects (Schröder, 2003). A remarkable success is the approval of this endeavor by several data protection commissioners, who act on the state and the federal level of the Federal Republic. This is particularly notable because data protection plays a much more significant role in Germany than it does in most other countries.

The following is a selection of experiences that need to be examined and thought about:

- Solutions developed under the Bund Online 2005 framework and provided free of charge to all public institutions didn't diffuse well especially on the local level, because they seemed too complex and over-dimensioned for their intended purposes.
- Presently, not much has changed regarding the bad practice that many different software products in the public sector are being developed and used for identical purposes. This applies particularly on the local level. Here, the perseverance resulting from the fact that a heterogeneous IT-environment enables local data centers to defend their turf and software companies to secure their sources of profit, has been underestimated.
- Many projects sponsored by Media@komm were not self-sustaining after their funding expired. Occasionally, it even seems that the financial assistance has served little to developing local e-government, but rather aided to the prospering of enterprises partaking in the respective projects.
- Civic acceptance levels of currently offered e-government services are lower than expected as can be seen from different research reports. Downright disillusioning results were produced by a representative poll in the German federal state of Saxony on behalf of Siemens in mid-2005 (N.N., 2005b; Schaeff, 2005). According to this poll, even the overwhelming majority of experienced Internet users would prefer telephone contacts in interactions with the administration over computer-mediated interaction.
- Another circumstance seems just as worrisome: in spite of all provided assistance, the electronic signature has, as of yet, not become widely used. This also became evident upon first attempts to add such a component to the electronic tax return, which otherwise has been very successful in Germany: almost no one used this option (Hanken, 2004, 6; Schallbruch, 2005). All in all, online transactions do not play a noteworthy role in interactions between citizens and administration up to now.
- Applications enabling result-oriented participation of citizens in political decision-making processes are encountered only as rare exceptions, even on the local level (Bertelsmann Stiftung, 2004; Initiative E-Participation, 2005; Wind and Westholm, 2004, 59 ff). Similarly, the potentials of IT as a means of reorganization are only utilized to a very limited extent until now (Hill, 2004, 721 ff; Lenk, 2004, 36 ff; Wulff, 2005).
- According to the Federal Health Department (Bundesgesundheitsministerium), the Electronic Health Card project is well on its way. At the same time, it is evident that the timings of this project are unrealistic (Lanz, 2004). At first, this card was to be introduced nation-wide until the end of 2006. Then, suddenly, it was merely gradually to replace the current health insurance card from 2006. Meanwhile, it appears as though even the revised timings cannot be held.

- The Virtual Job Market project is currently not only being criticized for insufficient utility, but also for severely exceeding the allotted budget (Bundesagentur für Arbeit, 2005; Müller, 2004; N.N., 2005c). Originally, the federal employment agency had a budget of 65 million euros for the project. Now, the necessary expenditure is already figured at well over 160 million euros.
- Toward other countries, Toll Collect is aptly promoted as a German success story by the federal government. Yet this does not at all mask the fact that severe complications occurring before the launch date caused dramatic consequences for the federal budget (Pilzweger, 2005; Seeger, 2005). On account of not having maintained the former launch date in August 2003 due to technical difficulties, the government has forfeited over two billion euros in revenue.
- The Fiscus project, meanwhile, has grown to be a lame duck of German e-government (N.N., 2004; N.N., 2005a). Until 2001, 170 million euros had been used up without yielding respective results, and this volume quintupled until now. Not only Bavaria, but also all East German federal states have already abandoned this project. In the Ministry of Finance, the discussion is now about whether the federal government ought to withdraw from the project as well, which surely would be the end of Fiscus. If it will, in fact, end this way, then 13 years of developing, and costs in the range of 900 million euros, would have been in vain.
- Lately there has been a tendency in Germany to focus expectations in connection with e-government onto the realignment of the interfaces between administration and businesses, particularly onto e-procurement, where good chances for a timely amortization are expected (Büllesbach, 2005, 40 ff; Niemeier, 2005, 34 ff). However, this risks letting much more important aspects of e-government drop from the agenda that were explicated in the Memorandum in the year 2000.

8. Summary and conclusions

The considerations over the catalog of parameters critical for the diffusion of e-government applications, show that an abundance of obstacles and resistances oppose successful e-government, the overcoming of which requires greater efforts than may be assumed at first sight. Whoever wants to conduct respective projects will not only have to deal with problems arising from conflicting goals, which restrict the leeway for political-administrative action, but also with problems on the diffusion level, which make it more difficult to make use of the limited leeway than many assume.

Based on this background, the following conclusions are to be drawn:

- Without a doubt e-government is crucially important for the development of the German governance system and society, across the board of all fields and forms of application that were indicated in the Memorandum in 2000.
- Whoever gives in to the temptation to reduce the expectations in connection with e-government altogether onto the realignment of the interfaces between administration and businesses, and particularly onto e-procurement, because an amortization can be attained more quickly in this area, is going down a dead-end. This is because electronic procurement represents an area where the institutions of the governance system do not pursue their original tasks, but only act in order to acquire the necessary equipment for carrying them out. Because they don't act in their primary roles, but in secondary roles as

economic subjects, this field of action may more accurately be assigned to electronic business than to e-government.

- In order to support e-government in all its relevant aspects, elementary research in the area of e-government must be further advanced; suitable projects must continually be initiated, promoted, and funded; and the results of these projects must be supplied to broad utilization. The objective here is particularly to connect the decentralized development of location- and area-specific applications with the central supply of base components such as digital signature systems and payment systems. This is, in fact, the prevailing conviction that is, of course, not contested here.
- The considerations in the preceding sections suggest even more strongly the conclusion that intensified efforts and also scientific assistance are called for above all whenever problems need to be dealt with that arise from conflicting goals or appear on the level of diffusion. Because these are areas underestimated in their importance, on the grounds of which the question of success or failure of a project can be decided.
- It should be assumed that in most areas expenditures for e-government are not going to amortize in the short- or medium-term, but rather represent strategic investments for the future. At some point in time – when in many different places in society IT-procedures with uniform base components will have been introduced, and when cross-linking leads to synergies or even to snowball effects – these investments will most probably pay off enormously. Then those who did without such investments, will regret their inactivity. When this will occur is yet unforeseeable and until then it can be assumed that e-government projects cannot be self-sustaining and that win-win situations will be only an exceptional result.
- Under these conditions an optimistic perception of e-government without reflection is risky, because disappointments are certain and can burden further developments or even lead to discrediting of this approach. The disillusioning experiences which, in particular, were obtained in many German municipalities from the application of the New Control Model, can be seen here as a clear warning. Therefore, the promotion of a realistic perception of the possibilities, limitations, and time horizons of e-government is no less important than the promotion of the innovations themselves.

In conclusion, the latter point should be reemphasized: some years ago, in order to set things in motion in Germany, it was above all important to promote e-government and to convince the decision makers and the public of its benefits. Today, it is time to correct exaggerated expectations in order to pave the way for a lasting and sustainable development process. This also entails resisting the temptation to diminish e-government to a special form of e-business that includes public agencies, and to degrade this approach to a mere strategy for budget consolidation. Moreover, justice must be done to those who are responsible for the realization of the projects and who are accountable for their practical results. Germans could perhaps learn from other countries that one can embark on innovations with somewhat more calm and composure, while still not losing sight of the goal.

References

Ahrens, Katharina (2005): Initiative D 21 – Fact Sheet, Berlin, available online at www.initiatives21.de/english/index.php.

Alpmann, Ariane and Norbert Eder (2002): Ziele, Arbeitsweise, Mitglied werden, in: Initiative D 21 (ed.): Mit Internet Staat machen, Berlin, p. 101-103.

- Argy, Fred (2004): Balancing conflicting goals – The big challenge for governments, in: Australian Journal of Public Administration 12, p. 22-26.
- Bertelsmann Stiftung (2002a): Balanced E-Government, Gütersloh.
- Bertelsmann Stiftung (2002b): Zehn-Punkte-Plan für gutes E-Government, Gütersloh.
- Bertelsmann Stiftung (2004): Neue Medien und Bürgerorientierung, Gütersloh 2004.
- Bhatnagar, Subhash (2004): E-Government – From Vision to Implementation, New York.
- Bizer, Johann (2003): E-Demokratie – Hört auch jemand zu?, in: Dittrich, Klaus et al. (ed.): Informatik 2003 – Innovative Informatikanwendungen, Bonn, p. 211-213.
- Bruhn, Olaf (2005): Kurzporträt der Fiscus GmbH, Bonn, available online at www.fiscus.de/unternehmen.htm.
- Büllesbach, Rudolf (2005): E-Government wird Betriebssystem für die Wirtschaft, in: Innovative Verwaltung 3, p. 40-44.
- Bundesagentur für Arbeit (2003): Virtueller Arbeitsmarkt wird Realität, Nürnberg, available online at www.arbeitsagentur.de/vam/vamController/CMSConversation.html.
- Bundesagentur für Arbeit (2005): Bundesagentur widerspricht Medienberichten zum Virtuellen Arbeitsmarkt, available online at www.arbeitsagentur.de/vam/vamController/CMSConversation.html.
- Bundesamt für Güterverkehr (2005): Truck Toll Collect in Germany, Potsdam.
- Bundesministerium für Wirtschaft und Arbeit (2002): Erfolgsfaktoren – Was bei der Gestaltung virtueller Rathäuser zu beachten ist, Berlin.
- Culbertson, Stuart (2004): Building E-Government – Organizational and Cultural Change in Public Administration, in: Oliver, E. Lynn and Larry Sanders (ed.): E-Government Reconsidered – Renewal of Governance for the Knowledge Age, Regina, p. 59-78.
- Der Deutsche Bundestag (2001): Das Demokratieprojekt des Unterausschusses Neue Medien zur Modernisierung des Informationsrechts, Berlin.
- Die Bundesregierung (1999): Moderner Staat – Moderne Verwaltung, Berlin.
- Die Bundesregierung (2001): Bund Online 2005. Umsetzungsplan für die E-Government-Initiative, Berlin.
- Eifert, Martin (2004): Electronic government in Germany, in: Eifert, Martin and Jan Ole Püschel (ed.): National electronic government, London and New York, p. 117-135.
- Ewert, Burkhard et al. (2003): E-Demokratie – Stand, Chancen und Risiken, in: Schulzki-Haddouti, Christiane (ed.): Bürgerrechte im Netz, Bonn, p. 227-260.
- Federal Ministry of Economics and Labour (2000): Media@Komm – an initiative of the German Government, Berlin, available online at www.mediakomm.net/en/index.php.
- Federal Ministry of Economics and Labour (2004a): E-Government for local authorities, Berlin, available online at www.mediakomm.net/en/index/phtml?menu_id=5&active.php.
- Federal Ministry of Economics and Labour (2004b): The Media@komm-Transfer project, Berlin, available online at www.mediakomm.net/en/index.php.
- Federal Ministry of Health and Social Security (2004): The electronic health card, Berlin, available online at www.die-gesundheitsreform.de/zukunft_entwickeln/elektronische_gesundheitskarte.php.
- Federal Ministry of the Interior (2004a): Bund Online 2005, Implementation Plan 2004 – Status and Outlook, Berlin, available online at www.bund.de/nn_211214/EN/BundOnline-2005/Implementation-plan-2004.php.
- Federal Ministry of the Interior (2004b): Deutschland Online – joint strategy for an integrated, electronically communicating administration in Germany, Berlin, available online at www.deutschland-online.de/english/index.php.
- Federal Ministry of the Interior (2004c): Modernizing the Federal Administration, available online at www.staat-modern.de/dokumente/sm_bestellservice/-548958/dok.htm
- Forlano, Laura (2004): The Emergence of Digital Government – International Perspectives, in: Paylichev, Alexei and G. David Garson (ed.): Digital Government – Principles and Best Practices, Hershey and London, p. 34-51.
- Fountain, Jane E. (2001): Building the Virtual State, Washington DC.
- Fricke, Carsten (2002): Digitale Signatur – rechtliche und technische Anforderungen, in: Initiative D 21 (ed.): Mit Internet Staat machen, Berlin, p. 49-55.
- Friedrichs, Stefan et al. (2002): Balanced E-Government. Visionen und Prozesse zwischen Bürgernähe und Verwaltungsmodernisierung, in: Aus Politik und Zeitgeschichte 39-40, p. 12-23.

- Garson, G. David (2004): The Promise of Digital Government, in: Paylichev, Alexei and G. David Garson (ed.): Digital Government – Principles and Best Practices, Hershey and London, p. 2-15.
- Gernert, Christiane (2000): Architektur als zentrale Aufgabe in heterogenen IT-Systemen, in: Lüttich, Hans-Jürgen and Claus Rautenstrauch (ed.): Verwaltungsinformatik 2000, Halle an der Saale, p. 47-60.
- Geschka, Horst (2001): Der vernetzte Bürger, in: Gora, Walter and Harald Bauer (ed.): Virtuelle Organisationen im Zeitalter von E-Business und E-Government, Berlin, p. 115-136.
- Gesellschaft für Informatik GI and Verband Deutscher Elektrotechniker VDE (2000): Electronic Government als Schlüssel zur Modernisierung von Staat und Verwaltung. Ein Memorandum des Fachausschusses Verwaltungsinformatik der Gesellschaft für Informatik und des Fachbereichs 1 der Informationstechnischen Gesellschaft im Verband Deutscher Elektrotechniker, Bonn and Frankfurt, available online at www.uni-oldenburg.de/fb3/lehre/lenk/MEMORA.doc.
- Grabow, Busso and Christine Siegfried (2002): Virtuelle Rathäuser und die Media@komm-Modellprojekte, in: Reiner mann, Heinrich and Jörn von Lucke (ed.): Electronic Government in Deutschland, Speyer, p. 151-178.
- Habel, Franz-Reinhard (2002): Die elektronische Demokratie, in: Blaschke, Peter et al. (ed.): E-Public, Berlin, p. 49-57.
- Hagedorn, Hans (2003): Internetgestützte Bürgerbeteiligung, in: Märker, Oliver and Matthias Trénel (ed.): Online Mediation, Berlin, p. 365-391.
- Hagen, Martin (2004): Electronic government in the United States, in: Eifert, Martin and Jan Ole Püschel (ed.): National electronic government, London and New York, p. 211-240.
- Hanken, Claas (2004): Elektronische Signaturen und E-Government – Aktuelle Entwicklungen in Deutschland, available online at www.ecmc.de/imblickpunkt/pdf/imblickpunkt_egovernment.pdf.
- Hill, Hermann (2004): Bürokratieabbau und Verwaltungsmodernisierung, in: Die Öffentliche Verwaltung 17, p. 721-730.
- Initiative D 21 (2002): Mit Internet Staat machen, Berlin.
- Initiative D 21 (2004): Promoting the acceptance of the electronic health card, Berlin, available online at www.initiativesd21.de/ssi/drucken.php?english/lighthouse/healthcard.php.
- Initiative E-Participation (2005): Elektronische Bürgerbeteiligung in deutschen Großstädten 2004, Berlin.
- Jander, Rudolf (2002): Bundesanstalt für Arbeit gewinnt E-Government-Wettbewerb 2001 mit dem Projekt Virtueller Arbeitsmarkt, in: Initiative D 21 (ed.): Mit Internet Staat machen, Berlin, p. 36.
- Jansen, Stephan and Birger Priddat (2001): Electronic Government, Stuttgart.
- Kleindieck, Ralf (2002): Bund Online 2005, in: Reiner mann, Heinrich and Jörn von Lucke (ed.): Electronic Government in Deutschland, Speyer, p. 118-129.
- Landsberg, Willy (2002): Electronic Government aus Sicht der Verwaltung, in: Reiner mann, Heinrich and Jörn von Lucke (ed.): Electronic Government in Deutschland, Speyer, p. 20-45.
- Lanz, Forain (2004): Die Gesundheitskarte kommt später, available online at <http://archiv.tagesspiegel.de/2923062005.htm>.
- Lenk, Klaus (2004): Organisatorische Potentiale für die Verwaltungsmodernisierung, in: Schuppan, Tino (ed.): Das Reformkonzept E-Government, Münster, p. 36-58.
- Lucke, Jörn von (2002): Barrieren des E-Government in Deutschland – Ursachen und Ansätze zur Überwindung aus Sicht der Wissenschaft, in: Reiner mann, Heinrich and Jörn von Lucke (ed.): Electronic Government in Deutschland, Speyer, p. 68-93.
- Märker, Oliver and Matthias Trénel (2003): Online Mediation – Konfliktvermittlung in neuem Kleid, in: Märker, Oliver and Matthias Trénel (ed.): Online Mediation, Berlin, p. 7-20.
- Müller, Dietmar (2004): Virtueller Arbeitsmarkt – Ferrari-Motor in einer Ente, available online at www.zdnet.de/itmanager/kommentare/0,39023450,39121071,00.htm.
- Naujokat, Wolfgang and Bernd Eufinger (2002): Barrieren und Hindernisse des E-Government aus der Sicht der Wirtschaft, in: Reiner mann, Heinrich and Jörn von Lucke (ed.): Electronic Government in Deutschland, Speyer, p. 94-103.
- Niemeier, Norbert (2005): Ein nutzungsorientierter Projektansatz bringt Vorteile, in: Innovative Verwaltung 4, p. 34-37.
- N.N. (2004): Fiskus-Projekt steht vor dem Scheitern, in: Computerwoche 12, p. 8.
- N.N. (2005a): Das 900-Millionen-Euro-Grab, in: CIO – IT-Strategie für Manager 6, p. 11, available online at www.cio.de/_misc/article/print/index.cfm?pid=153&pk=803734&op=prn.

- N.N. (2005b): E-Government Studie – Bürger bevorzugen das Telefon, available online at www.kommune21.de//print.php?data=4539&print=txt.
- N.N. (2005c): Rote Karte für das Projekt virtueller Arbeitsmarkt, in: CIO – IT-Strategie für Manager 6, p. 10-11, available online at www.cio.de/_misc/article/print/index.cfm?pid_153&pk=803737&op=prn.
- Ogburn, William (1957): Cultural Lag as a Theory, in: *Sociology and Social Research* 1, p. 167-177.
- Offe, Claus (1974): Rationalitätskriterien und Funktionsprobleme politisch-administrativen Handelns, in: *Leviathan* 1, p. 333-345.
- Otten, Dieter (2002): Modernisierung der Präsenswahl durch das Internet, in: Buchstein, Hubertus and Harald Neymanns (ed.): *Online-Wahlen*, Opladen, p. 10-20.
- Pilzweger, Markus (2005): Maut-Debakel könnte Toll Collect Milliarden kosten, in *PC-Welt Online*, available online at www.pcwelt.de/defaults/drucken/cfm?pid=38&pk=101070.
- Piore, Michael and Charles Sable (1984): *The Second Industrial Divide*, New York.
- Rayport, Jeffrey and John Sviokla (1995): Exploiting the Virtual Value Chain, in: *Harvard Business Review* 12, p. 75-85.
- Relyea, Harold C. and Henry B. Hogue (2004): A Brief History of the Emergence of Digital Government in the United States, in: Paylichev, Alexei and G. David Garson (ed.): *Digital Government – Principles and Best Practices*, Hershey and London, p. 16-33.
- Schaeff, Alexander (2005): Ein Anruf verbindet, in: *Kommune* 21 6, p. 12-13.
- Schallbruch, Martin (2005): Das Signaturbündnis – Ende der Signaturdiskussion, available online at www.politik-digital.de/text/egovernment/esignatur/sig1.shtml
- Scheer, August W. et al. (2003): *E-Government – Prozessoptimierung in der öffentlichen Verwaltung*, Berlin.
- Schröder, Ulrich (2003): Probe bestanden – Erfolgreicher Test der Gesundheitskarte und Perspektiven einer bundesweiten Einführung, in: *Krankenhausumschau* 1, p. 10.
- Seeger, Svezdana (2005): Troubleshooter bei Toll Collect, in: CIO – IT-Strategie für Manager 6, p. 20-23, available online at www.cio.de/_misc/article/print/index.cfm?pid=162&pk=808917&op=prn.
- Steinbicker, Jochen (2001): *Zur Theorie der Informationsgesellschaft*, Opladen.
- Toll Collect (2005): *Toll Collect – service on the road*, Berlin.
- Webster, Frank (2002): *Theories of the Information Society*, London and New York.
- Weill, Peter (2004): *IT Governance*, Boston.
- Wewer, Göttrik (2004): Deutschland Online, in: *Stadt und Gemeinde* 9, p. 36-38.
- Will, Martin (2002): *Internetwahlen*, Berlin.
- Wilson, James Q. (1989): *Bureaucracy – what agencies do and why they do it*, New York.
- Wind, Martin and Hilmar Westholm (2004): Bürgerbeteiligung durch E-Government – Potentiale und Praxiserfahrungen, in: Schuppan, Tino (ed.): *Das Reformkonzept E-Government*, Münster, p. 59-75.
- Winkel, Olaf (2001): The Democratic Potentials of Interactive Information Technologies under Discussion – Problems, Viewpoints, and Perspectives, in: *International Journal of Communications Law and Policy* 6, p. 10-25.
- Winkel, Olaf (2003): Electronic Cryptography – Chance or Threat for Modern Democracy?, in: *Bulletin of Science, Technology and Society* 3, p. 185-191.
- Winkel, Olaf (2004): E-Government – die Konturen zeichnen sich immer deutlicher ab, in: *Verwaltung & Management* 2, p. 126-132.
- Womack, James et al. (1991): *The machine that changed the world. The story of lean production*, New York.
- Wulff, Marianne (2005): *E-Government und Verwaltungsreform – Positionspapier der Kommunalen Gemeinschaftsstelle für Verwaltungsvereinfachung*, Köln.
- Zypries, Brigitte (2002): *Bund Online 2005 – auf dem Weg zum dienstleistungsorientierten modernen Staat*, in: Blaschke, Peter et al. (ed.): *E-Public*, Berlin, p. 43-47.