New Models of Collaboration
A Guide for Managers

Bremen Online Services

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Abstract

Bremen Online Services is a federally funded project which aims to develop electronic government and to provide online transactions and payments in a secure way. The project is carried out in an innovative public private partnership by the Free Hanseatic City of Bremen and regional and national partners from private industry. The goal of the project is to offer public and private services over a common and secure platform. This allows services to be offered in a single-window fashion over the web. Success of the project can be credited mainly to an interdisciplinary approach to problem solving and including public administration and private sector firms as equal partners.

Project Environment

Bremen and MEDIA@Komm in Germany

In late 1997, the German federal government initiated a competition called "MEDIA@Komm" for local governments to develop integrative concepts on how to launch innovative electronic services for citizens and business. "Integrative" was understood both from a technological and organizational point of view: the competition called for the use of electronic signatures which were then (and still are) seen as one of the crucial prerequisites for successful electronic commerce, and urged local authorities to cooperate with the private sector.

Out of 136 entries, ten were selected in April of 1998. These cities were funded for half a year to detail and work out the final concept. Of these, the three best concepts were selected in March of 1999: Esslingen, Nürnberg and Bremen. This case study will deal with Bremen, the city which arguably took both aspects of integration most seriously by founding a limited liability company (GmbH & Co KG) with private industry partners and charging it to implement immediately full-scale electronic transactions systems including digital signatures and payments.

Winning the MEDIA@Komm-competition meant that Bremen received almost $10 million matching funds from the federal government. These funds co-finance the launching phase of the project, which runs until 2002. Within this time-period, Bremen hopes to develop and implement new solutions to deliver public and private services, thus changing the way citizens and business interact with government and private service providers. By the summer of 2001, it had demonstrated practicability of concepts and implemented first pilot systems. As a result, Bremen is becoming a leading edge case for electronic government (and commerce) services, in both a national and an international context.

Strategic Context

First and foremost, developing electronic government appeals to government administrations, companies and the public alike because it is generally understood to mean better and cheaper service. But electronic government is also an economic opportunity. The more obvious reason why this is so is the increasing importance of information technology (IT) in all aspects of business and social life. For cities this means that support of IT industries is crucial for increasing and maintaining wealth and employment in the local region, which is paramount for Bremen.

The less obvious but even more important reason for Bremen to engage in e-government is the reduction in the city's net income due to a decline in the once dominating harbor and steel industries, subsequent unemployment, and redistributions within Germany's complicated system of tax-income sharing between the different levels of government. The immediate challenge for Bremen is to reduce a structural deficit of DM 850 million in its annual budget. It needs to save up to 166 million per year in its operational budget in order to present a balanced budget by 2005. In that year, the Federal government will stop helping Bremen fill the gap in its yearly budget. In this context, electronic government may be a solution which allows Bremen to sustain a sufficient level of service while reducing operating costs.

Institutional-legal context

The most important institutional contexts influencing electronic government concern the organization of the city government and formal requirements for citizen-administration interaction. Bremen is unique because it is not only a local government, but forms (together with the city of Bremerhaven) a city-state. It is Germany's smallest *Land*, as the federal states are called. Every city (and *Land*) is free to organize itself independently. The federal and the *Länder* level have delegated almost all direct interactions with citizens to local administrations, and rarely meet the citizens themselves. However, they remain in charge of the formal requirements.

Being a city-state means that Bremen is able to change laws governing the material content of formal requirements, for example in building/housing and education laws; a right which other cities do not have. However, a rather substantial amount of all regulations for citizen-administration interaction is drafted at the federal level and/or in cooperation with the other states, so that some coordination problems remain.

Electronic transactions in business life and in dealings with administrations have been legally practical for quite some time. However, when functions of authenticity, identification, (data) privacy, integrity, and (non-) repudiation are at stake, electronic equivalents have to be found for "paper-based" systems such as signatures, envelopes, and identity-cards. Because there is a considerable gap in legal expertise as to which technologies reliably deliver those functions, electronic government has been effectively hindered by an array of different and diverging opinions as to what is feasible and what not.

To address one of the most salient problems, reliance and trustworthiness of electronic signatures, Germany regulated their issuance in 1997. In 2000, the EU-directive on electronic signatures became effective (causing Germany to adapt its older law). At a much slower pace, the administration is now reforming the formal requirements in its many laws, allowing for more uses of electronic signatures in interactions with government. Most significantly, the general laws governing administration processes will introduce a new formal requirement beyond the “written form“: the “textform“, which can be met by electronic means as well.

With regard to cooperation with the private sector, one needs to emphasize that transactions with public administrations tend to be more complex than (the already comparatively wide spread) banking transactions. Instead of transfers from one account to another, sell-/buy-orders, or credit card debits one needs to support multi-step, time-distributed, and multiple-partner processes, such as an application for socially-assisted housing or starting a company. Many of these transactions include public and private sector organizations being subject to private and public law at the same time.

The project

Goals

The MEDIA@Komm-project in Bremen is carried out by "Bremen Online Services." The goal of the project is to modernize Bremen's public administration with a focus on customer service, and to link this effort with a boost for the local ICT industry. This is to be achieved by developing a new delivery channel for public and private services: the integrated electronic single-window service.

This requires a common online platform with private partners, which is able to process secure transactions including authentification, identification, encryption and payment between citizens/customers and administrations/private service providers. As important as the platform are the applications in administrations and in the private sector which allow fully integrated electronic transactions and the means to achieve the widest possible access to these services. Together, platform/infrastructure, access, and applications comprise the key-components (cf. Fig. 1) and will be described in more detail in the next sections.

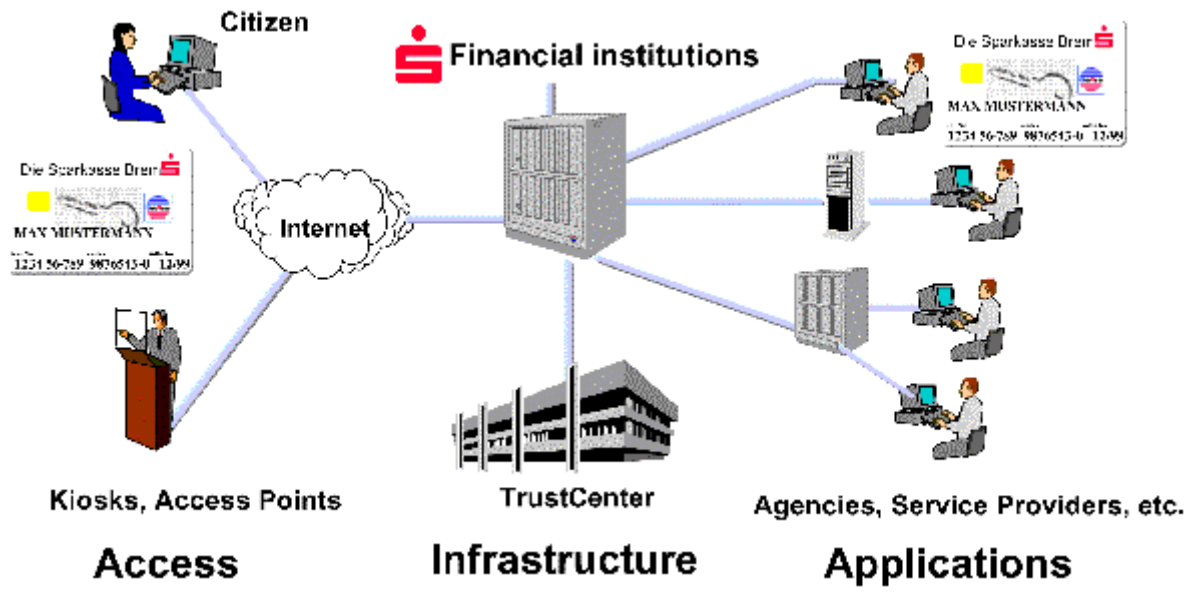

Fig. 1: Three components of the Bremen Online Services project

Access

In generalized terms, access to electronic services requires the distribution of three technological means: Internet access, security (signature/encryption) technology, and payment technology. Internet access so far is not widely available in the home and in the workplace. In Germany in 2000, about one-third of the population was believed to be online (in the US, this figure was believed to be twice as high). This leaves the majority of the population unconnected. Many governments want to address this gap with kiosks. These are self-service machines like ATMs. In Bremen, experience with information-only kiosks has been very disappointing. Usage is low, while the cost for maintenance and for the hard shells needed to prevent vandalism is expensive. In addition, public services require explanations which can better be provided by humans. For these reasons Bremen is applying the concept of assisted access points, where regular PC-units are made available at public places, such as city offices,

community centers, or schools. While saving costs, this approach has the additional advantage of providing in-person assistance.

An important element at the technological center of electronic government is electronic signatures. In essence, electronic signatures, according to German law rest on an asymmetric cryptographic procedure. In order for them to be secure, one component, the private key, has to be issued to its holder in a smart-card, where it can not be manipulated. The other part, the public key, has to be held in a public directory maintained by a so-called trust-center. Software can then be used to encrypt and decrypt as well as to prove identity and integrity of messages. For the user, this means he has to acquire a signature card and a card-reader. Bremen Online Services tries to foster distribution of electronic signatures by trying to integrate them on German banking cards, which are held by most Germans.

This seems to be advisable because most transactions requiring signatures also involve payments, either as a price for a service or a fee for its delivery. Consequently, online services have to provide for online payment methods. Bremen Online Services will offer payment by debit notes and remittance, as well as prepaid smart cards. A fourth option, credit card payments, is not being accepted by German public administrations because of the comparatively high fees. This might change in the future. Also, since private service providers are more open to accept this form of payment, Bremen Online Services will offer this feature as well.

Infrastructure

To process electronic transactions, an infrastructure of value-added services is needed in addition to the telecommunications and Internet-communication protocols. In this regard at the center of the Bremen Online Services effort is the development of a data exchange format encapsulating both content data and security and routing functions. This data standard is XML-based and labelled "Online Services Computer Interface" (OSCI). In some important respects, it is modelled after the German banking industry's standard "Homebanking Computer Interface" (HBCI), which has helped to reduce development effort and time. Most notably, OSCI allows the integration of electronic signatures issued according to the respective EU-directive and the German electronic signature law. It also allows for encapsulation and easy conversion of many different data formats. It is structured to allow an intermediary to process the transaction, while at the same time preserving end-to-end-security between the users.

Bremen Online Services developed the necessary software and an online platform, labelled "OSCAR," which allows transactions between citizens/customers and the backend-systems within the public administration and private service providers. It handles all communications necessary to process payments and signatures, including the administrations's pay-office and the privately run trust-centers in Germany. It also performs necessary cross-functions such as logging, storing, and billing, as well as time-controlled delivery.

Applications

The third component of the electronic government concept is made up of a number of computer-based services such as older legacy systems. For the most part, this means opening existing applications and systems within the administrations and at private service providers, such as public utility, phone and post services, ticket-sellers and insurance companies, so that they can process online-transactions automatically, guarded by the intermediary and signatures.

This, of course, is not at all easy and requires large-scale "re-engineering" efforts in the respective agencies. Bremen Online Services selected several administration areas and provides funding in order to support these efforts. The highest priority is on those applications which are used by intermediary agents such as lawyers or tax consultants, because here both parties are likely to realize cost-effective gains through electronic transactions. The same applies for general business applications in the area of procurement. To increase usage of electronic services, several services are offered for the general public in the areas of moving and housing as well as leisure activities (mostly ticketing). Additional applications are implemented for students (college/university processes), car dealerships (car registration) and others (see Fig. 2).

Intermediary agents	**Business**	**Citizens**
- Tax filings and information (for tax consultants) - Legal procedures with courts (for lawyers) - Building applications (for architects) - Car registration (for registration services)	- Procurement - Car registrations (for car dealerships and manufacturer)	- Moving - Leisure activities (ticketing for movie theaters, theaters and sport events) - College/University processes (for students)

Fig. 2: Application areas of Bremen Online Services

The public services are complemented by private services. In all, more than 70 processes conducted by almost 30 service providers are scheduled for implementation during the time that federal funding is available. Providing such a broad spectrum of services in a single-window fashion is important because if citizens or customers will conduct all necessary transactions in a given life-situation, such as moving, dealing with unemployment or starting a business, it will be beneficial to use electronic services. Single processes by themselves do not add value because each one would have its own technology costs such as the need to purchase or acquire an electronic signature or electronic cash purse. By contrast single-window services avoid data and technology duplication.

The partners

Public Partner: The city of Bremen's public administration

As explained in section 1.2., Bremen Online Services complements both the city's public administration reform efforts and the regional development strategy. As in any city with more than half a million inhabitants, Bremen's public administration is hardly a monolithic block. It consists of public agencies within seven divisions (justice; interior and sports; culture; building, planning, and environment, education; social and labor affairs; economics and harbor), each of which is headed by a senator, who make up the cabinet of the state and the city. The cabinet is led by the mayor and the second mayor, which, at the moment, head the justice department and the finance department, respectively. In addition, the city owns numerous independently managed agencies, which operate in (potentially) competitive markets, such as hospitals, libraries, waste utility, construction companies, personnel management and accounting. It also maintains partnerships and/or holdings in for example, banks, investment agencies, communication provider, theater, and parking garages (in all over 220 such entities).

The city plans to develop its public service delivery further into what is described as a principal-agent model: The city and its divisions and agencies act as the principal, which guarantees

delivery, and steers and delivers core state functions (police, judiciary, and finance). Most, if not all, of the other services should be provided by two types of agents: the first ones build a "market of service delivery" characterized by competition, free agents, and service and framework agreements. To achieve this, the city plans to privatize the respective agencies active in this field. The second type is a "citizen commune" characterized by self-organization, decentralization, and contracts on services, goals and public funding. This is to exploit social engagement and competence from the bottom-up, and support it with public means.

Bremen Online Services will allow all agencies, public, private or from the third sector, to deliver their services in an electronic fashion. Because it also acts as an electronic counter, it can support new models of service delivery as well, where citizens will find the service they need without regard to the status of the particular service provider in question.

For the first three years, the Office for New Media and eGovernment (formerly IT) is in charge of the project. This office is part of the General Organization and Personnel division of the Senator for Finance, and sets the overall IT strategy for all city departments and enforces compliance with IT standards. The office partners with the other departments and their IT specialists, as the latter maintain the control over their own IT systems. In order to insure wide spread involvement throughout the city's departments, the office adopts a cooperative leadership style. It is also paramount to provide the individual departments with the necessary funding for personnel and IT resources so that they can participate in Bremen Online Services. After federal funding ends, Bremen Online Services will have to sell their services to these departments as well as to other local governments.

Private Partners

In order to achieve its objectives, the city partners with several private companies. Two types of partnership can be distinguished. The first group are partners who cooperate on building the project and commit resources to the Bremen Online Service Development and Operation company. Among these, the most important are the Deutsche Telekom and the Sparkasse Bremen (the local savings bank), in addition there are several IT-companies, which each cover a specialised market in infrastructure or application technology. The second group are local and regional service providers. The city wants to offer their services through the electronic single-window delivery counter.

The Deutsche Telekom views Bremen Online Services as an important market opener for electronic signature technology, which is a rather expensive technology and in which the Telekom's subsidiary, TeleSec, has invested a lot of development efforts. But there are overaching concerns as well. First, creating online traffic is the core objective for any telecommunications provider, and developing new services is a way to do so. But Deutsche Telekom's involvement is also justified by the privatization of the German telecommunications market and its consequences. The Deutsche Telekom once held the monopoly in the German telecommunications market, when it was the national PTT. Now, it is still by far the strongest player, but it needs to operate in a competitive market. Especially in bigger cities, new telephone companies run by public utilities or now-privatized public telecommunications providers present a challenge. In general terms, participation in Bremen Online Services means a better grounding for the Deutsche Telekom in the Bremen market, which is also being fostered by other projects with the city, such as providing public access points to the Internet in schools.

The Sparkasse Bremen, the local savings bank, has an almost 50 percent market share in private banking of all regional households. Together with the other local savings banks in particular and the whole banking industry in Germany, it has introduced an prepaid purse feature on the common, standardized debit-card (ec-Karte). This feature, GeldKarte, is available to every owner of such a card, but it lacks usage. For the banks, use of this feature would mean increased balances of book money and less handling of paper money, especially coins. Also, with new card-reader technology, the GeldKarte is usable as a means for Internet payment. Thus, partnering with Bremen Online Services means for the Sparkasse Bremen not only an added service for its customers and an improved public image, but it might also help spur use of the the GeldKarte.

Several IT software developers have been and are involved in Bremen Online Services. Most significantly, a German start-up company which had acquired a significant market share in online banking software, Brokat, hoped to open a new market, electronic government, for its technological platform. However, specific demands of electronic services for the public administrations require a highly flexible and more complex infrastructure, which was ultimately not developed by this company. Other IT-partners have expertise in several fields of IT support in public administrations, but lack electronic signature, integration, and online-payment know-how. For these, partnering with Bremen Online Services is a strategic partnership to improve their own products as well.

Not as development partners, but as partners who offer their services via the same platform, several local, regional, and national service providers have been approached by Bremen Online Service. While their involvement increases use of the platform and makes its services more attractive, these service providers also benefit from cooperation. For example, the local public utility company not only offers its services, such as change of address or registering readings of water and electricity meters online, but issues signature cards in its customer centers and provides assisted access points. This, in the eyes of the public utility company, increases customer service and helps to keep customers. The same value proposition can be made for the local public transport company. Other service providers, such as the Deutsche Post or health insurance providers, are primarily partnering with Bremen Online Services because it allows them to be present in the One-Stop-Government feature and, as long as public funding is available, to gain experience with new signature and payment technology.

The Collaboration Process

Initiation and Design

The initiation of the project profited greatly from a longer-standing relationship between the city and university professor at the Applied Computer Science department. Both had jointly developed the city information system which became the official web presentation of Bremen, www.bremen.de. The outside perspective from the university broadened the scope of the project to cover all aspects of access, infrastructure, and applications, as outlined in section 2.2.-2.4. The initial concept team was completed with a senior consultant, who had been working on concepts to integrate electronic signatures and GeldKarte-applications for Deutsche Telekom and the national savings bank association. Meeting initial opposition by the city's economic division, who did not share this vision, the integrated concept drawn up by the city, the university, and the consultant firm proved to be successful in the first round, because it merited a broad and multidisciplinary approach to the problem of how to develop electronic services. As indicated above, winning the first round meant that the project team was funded

for a little more than half a year to detail the concept. This period was crucial in establishing the public private partnership which today makes up Bremen Online Services.

Led by a steering group made up of the original partners, including Deutsche Telekom and Sparkasse Bremen, the key paradigm for Bremen Online Services was to form non-discriminatory and open working groups for every technical and content aspect of the project. In these working groups, more than a hundred representatives from industry, local commerce, and public administration participated. The private sector was invited to participate by open calls for tender. Of course, the prospect of receiving a $ 20 million DM grant also had considerable appeal. The project was an opportunity for the private sector as well as for the administration to gain know-how about cutting-edge Internet transaction technology. When it came time to finalize the project, the steering group issued a call for tender and selected preliminary industry partners to implement the project in case the final grant would be awarded, as ultimately happened.

As for the agencies and private partners planning to offer services, participation has been voluntary. For several public administration applications, in such areas as legal administration, finance, building application permits, procurement, car registration, citizen's register and the institutes of higher education, funds have been awarded to allow the necessary re-engineering. During the initiation and design phases, the project profited greatly from the high-level support it gathered. Both the first mayor and the second mayor, who represent the true dominating parties in Bremen, the left-of-center Social Democrats (SPD) and the right-of-center Christian Democrats (CDU), personally supported the initiative and helped to assure widespread cooperation and support within and outside the administration. For them, the project and its ultimate success presented numerous opportunities in which to present Bremen as an innovative and successful city-state, which they greatly appreciated since it contrasted nicely with Bremen's over-all dire economic situation. The leadership was also necessary to overcome some initial resistance by actors and companies which had originally intended to use the federal competition to fund other projects in their realm.

Implementation and Operation

To carry out the main tasks of technical development and to share expertise as well as to cut the costs for each individual partner, the partners founded the Bremen Online Services Development and Operation company. It is a limited liability company, whose partners shared their stakes as showed in the following:

Hansestadt Bremen:	50.1%
Deutsche Telekom AG:	15 %
Die Sparkasse Bremen:	10% (since 2001: 15 %)
Brokat AG:	5%
Signum GmbH:	5% (until 2001)
VSS GmbH:	5%
mcb GmbH:	4.9%
BSAG:	2.5%
BREKOM GmbH:	2.5%

Brokat AG is the developer of the online banking solution, which was first believed to be a good starting point to develop the online platform. Signum and VSS were local software consultancy firms, who were awarded substantial parts of contracts after the call for tender. mcb is a subsidary of the City of Bremerhaven, BSAG is the local transport authority, and BREKOM the telecommunications provider for the city.

The two executives of the company are the head of the city's Office for new media and eGovernment and the consultant who had helped draft the project. Both of them remain part-time in their former jobs, with which they split their executive duties. The board of directors includes the university professor. Also, the company teams work closely with the working groups within the public administration and at the university, which assists the project leadership. Thus, the company is tied very closely to the most important application areas. This helps greatly in bridging the two worlds of public administrations and private sector, which have rather substantial communication problems, as had to be faced in the course of the project.

Within the city, the project groups are led by members of the Office of New Media and eGovernment and a representative from the respective agencies which participates in the project. The concept worked out by each team has to be approved by the powerful employees representation office. Implementation of the project within these groups is greatly enhanced by the provision of additional personnel and funds for IT development in each participating agency.

The private sector partners who offer their services within the single-window component of the service delivery front-end are also assisted by Bremen Online Services. They are provided with the technology, and development of initial applications for them is free during the time when federal funding is available. After that, they will become customers of Bremen Online Services, who then has to sell its products to them.

As the project hasn't reached this stage as this case study is written, one needs to point out that unfortunately no assessment can be made about how successfully the partnership will fare after that. The project intends to build all components before funding stops, so that it can deliver both a technologically satisfying and economically competitive solution to provide electronic services. This model, which ultimately puts the private sector in charge of delivering electronic services, will mean that public administrations and private service providers will only buy its services when it will seem feasible for them.

The business case of Bremen Online Services assumes that a break even point will not be reached until five years after its initial start, e.g., two years after the end of the federal funding. This is because the building of the infrastructure, providing access and re-engineering complete processes in the administrations all have to be paid for in advance of large-scale revenues. Revenues will be generated only partly by transaction fees within Bremen. Rather, Application Service Providing will become a necessary second business line. Thus Bremen Online Services has to establish itself as a nation wide operating software company.

This requires a long-term investment, which is fully accepted by the major players, the city, Deutsche Telekom and the Sparkasse Bremen. However, it creates a problem for the much smaller IT companies, who operate on smaller budgets. Their objective was to generate substantial revenue in a shorter time frame. This means that they are likely to quit the partnership if these goals have not been met, as has been the case already with one partner and might be so for others in the future.

Results

Collaboration, project and services

The initiation phase of the project can be regarded as a success. As was called for by the MEDIA@Komm competition, the city of Bremen and numerous private sector partners, both

in the IT field and original service providers, have joined forces to develop electronic government and a new means of service delivery: One-Stop-Government counter on the web. Through the use of interdisciplinary working groups and joint project leadership, Bremen Online Services achieved involvement of key public administration officials and private sector partners as well as the university.

The implementation and operation phases, however, present new challenges: the original technology partners were not able to deliver a successful prototype, leaving Bremen Online Services with no tangible result after the first half of the project. A crucial problem was that the weak leadership which comes with the adopted steering method to use broad working groups couldn't enforce a structured and high-paced approach to technological development. Also, since Bremen Online Services had subcontracted all development aspects to independent partners, a substantial amount of energy was spent on coordinating the contractors. The lessons learned from this experience led to a strategy overhaul in early 2001, when Bremen Online Services relieved most of its contractors of their duties and started to develop the infrastructure (OSCI and OSCAR) itself, transforming itself from a lean, coordinating company to a software development house in its own right. However, instead of developing whole packages for all of the application areas, Bremen Online Services specializes in its core competence in integrating electronic signatures and payment into different applications.

This new technical orientation means that Bremen Online Services is actively seeking more and more technological partners who have experience in building specific IT applications for individual administrations and service providers. For example, it cooperates with companies developing legal, procurement, or student administration applications. Bremen Online Services contributes its know-how in online-security and transactions, while the other companies know the customer base and their demands.

Although there was some delay in the technical development, the public administrations and service providers recently entered the first tests of service presentation on the single-window web site (see http://www.bremer-online-service.de). They started installment of registration places for electronic signatures and assisted usage places in their offices, laying the basis for a cooperative service delivery model in the online world.

The actual services implemented online so far vary in the degree to which they have fulfilled the promise of better, faster, and more convenient service delivery. In the area of legal administrations, Bremen Online Services and its respective partners in the administration and industry have developed an online query module for the city's register of companies and an online form to process default summons. Both applications have been met with enthusiasm by the users. However, they do not employ the core signature and OSCAR-technologies.

The pilot applications using electronic signatures, payment and OSCAR-technology are still being developed. The biggest challenge is to integrate the disparate signature, transaction, and payment technologies in such a way that they do not cause additional burden on the part of users. For them, use of electronic signature cards is a very uncommon procedure and requires a lot of background (e.g., what is an electronic signature really?) and practical knowledge (e.g., how do I install my card-reader?). While the first online applications have been running since September 2000, Bremen Online Services did not start to market its service until June 2001, after a redesign of the technology and the interface. Actual usage and feedback will show if the maturity of online government achieved in Bremen "makes the glass half-full or half-empty".

Opportunities/benefits

The opportunity for all partners in Bremen Online Services, of course, is to develop a completely new way of service delivery, both technically and organizationally. Information technology and the specific services developed by Bremen Online Services (like signature and transactions processing technology) will allow legally binding and complete administration processes to be conducted online. Especially in routine cases, this will allow all users to save costs and time on the transactions, and thus enable cost savings on part of the service providers and increased speed and convenience on the part of receivers. While this goal is shared with almost all players in today's economy, it requires large investments because a whole new infrastructure has to be created and a chicken/egg-problem must be overcome: access, infrastructure and applications have to be developed all at once. To do this, Bremen Online Services uses the significant funding of the federal government. However, the key to its success is to bring all important actors from the administration and private partners together and make them share the same vision.

Arguably even more important is an organizational opportunity which comes out of the new electronic service delivery method. It becomes a lot easier to integrate public administration services with private services, and thus offer citizens and customers services not in "silos", but according to their demand patterns. Integrating electronic instead of physically bounded services requires less organizational commitment by the partners, because a third party, in this case Bremen Online Services, acts as a common platform who takes care of the presentation of the interface. For each administration and private service provider this means they have to make an agreement with only one party and open only one (electronic) interface to the platform, while Bremen Online Services is responsible for bundling the services in user-oriented fashion. This, then, is the form of public-private partnership which allows single-window delivery for public and private services.

References

FHB 2000: Mitteilung des Senats vom 24. Oktober 2000 an die Bremische Bürgerschaft: Neuordnung der Aufgabenwahrnehmung in der Freien Hansestadt Bremen. Erster Zwischenbericht, Bremen.

FHB 1998: Bewerbung Bremens beim Städtewettbewerb Media@Komm, BMBF. Bremen.

For English summary see: www.bremen.de/media-komm

For the Bremen Online Services project, see: www.bos-bremen.de (company),

www.bremen-online-service.de (portal)