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A Value Model & Trends Based on a Survey

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Public e-services

A Value Model & Trends Based on a Survey

by

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1 Introduction

There are a lot of initiatives to launch new public e-services to citizens – both on national and on European levels (CapGemini, 2005). The 24/7-vision has become an important driving factor for this development. E-services can be characterized as being of varying complexity.

During the summer of 2006, 335 public e-services in Sweden were analyzed from four different perspectives. Underlying data was gathered using a questionnaire documenting the characteristics of each service as well as the service providers' experiences from the development and use of e-services. The 335 e-services were studied 1) in general and including aspects such as producer, functionality, etc. 2) by using the e-diamond model (Goldkuhl & Persson, 2006ab) for characterizing each e-service, 3) by using a new value model for evaluating e-services, and 4) in relation to contemporary trends in the development of new e-services.

In this report we will briefly present results from the first two perspectives. After this we will go into some detail concerning the value model and will finally make some remarks on e-services in relation to contemporary technical trends.

There are several frameworks for the purpose of design and evaluation of e-services. These frameworks highly emphasize different levels of complexity and maturity of e-services (such as information, interaction, transaction and integration). These frameworks are however driven from an organizational point of view where it seems that integration between different public authorities is desired. One could however question whether this is what different users (citizens, companies and other organizations) of e-services considers as important qualities.

We propose a new value-based framework for design and evaluation of e-services. It assumes that e-services are supposed to be of value for individual citizens and are therefore based on the interpretation of citizen values for a particular service.

Contemporary technical development has started to make new e-services possible. New trends, such as web 2.0 (c.f. O'Reilly, 2005), personalization etc. are concepts that put the client's needs first and are the basis for analysis and development.

The data material consisting of the 335 e-services is categorized as answers to the questionnaire. The general categories for each e-service are, among other aspects; name, target group, content, the need for identification (personal / non-personal), function, producer, co-operation between several organizations, in use / under development, used channels, and experiences.

Out of the 335 e-services, 65 of them are municipal e-services while 176 of them are produced by other public organizations, all of them directed toward citizens, customers and other users. The parenthesis appearing in the table means that these are in combination with other target groups, i.e. 22 e-services out of the 65 are aimed towards other target groups as well.

In the second part of the table there are some other categorizations made, for example that 53 % of the municipal e-services do not require any identification, while 52 % of the e-services produced by other public organizations require identification.

In the third part of the table the most common e-services in the data material are presented starting with libraries (for municipal e-services) and e-services regarding schools (for other public organizations).

Target group	Producer	Municipal e-services	Other public organizations' e-services
Citizens, Customers, Users		65 (22)	176 (118)
Companies		17 (15)	123 (105)
Other public organizations, county council, municipalities and organizations within public administration		15 (14)	121 (103)
Internal e-services within an organization		10 (3)	36 (7)
Characterization			
Non-personal		53 %	39 %
Personal / non-personal		10 %	7 %
Personal		37 %	52 %
Active		86 %	79 %
In co-operation with other organizations		45 %	41 %
Mostly web-based		93 %	98 %
Most common			
Library		24	10
School		8	46
Living / housing		4	10
Labor market		3	7
Finance			32
Healthcare and medicine			19
Agriculture			9

1.1 Results from model-based analysis – using the e-diamond

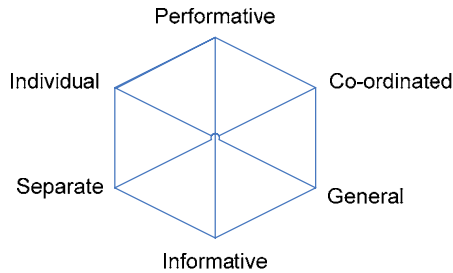
Before starting out with the model-based analysis, we looked into several different frameworks for categorizing the maturity level of e-services. We looked into Australian, Swedish and American frameworks for categorizing e-services. These frameworks emphasize different maturity steps named as information, interaction, transaction and integration. We did however take into consideration the criticism aimed towards these frameworks and put forward by Goldkuhl & Persson (2006b) and decided to use the so-called e-diamond model (ibid.) in order to arrive at a complementary view of the e-services represented in the data material.

In the e-diamond model three polarities are put forward. These are:

- 1 *Separate vs. coordinated e-services.* Separate e-services are such ones that only one authority is involved in producing. A coordinated e-service requires several authorities to be involved for supplying it.
- 2 *General vs. individual e-services.* General e-services are such ones that are aimed towards a general public, while individual e-services requires that the client becomes known to the producer / supplier of the e-service.
- 3 *Informative vs. performative e-services.* The informative dimension is only oriented towards the possibility for the client to study information supplied by the producer. In the performative dimension the client could act communicatively.

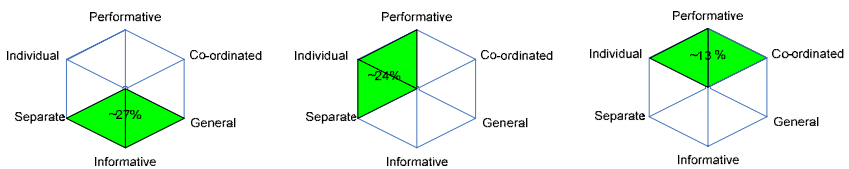
In the figure below the constituents of the e-diamond is put forward with the three polarities.

Figure 1: The basic constituents of the e-diamond model (from Goldkuhl & Persson, 2006ab)



By taking e-services and categorizing them in relation to each polarity we have categorized slightly more than 90 % of the e-services into different categories according to the e-diamond model. Figure 2 below reveals that 27 % out of the 335 e-services are informative and aimed towards a general public distributed by a single organization. 24 % out of the 335 e-services makes it possible for the client to perform communicative acts, requires identification and are distributed by a single organization. The last category (13 %) shown in figure 2 are distributed jointly by several organizations in which identification is required and that the client can perform communicative acts.

Figure 2: Different categories of the studied e-services according to the e-diamond model

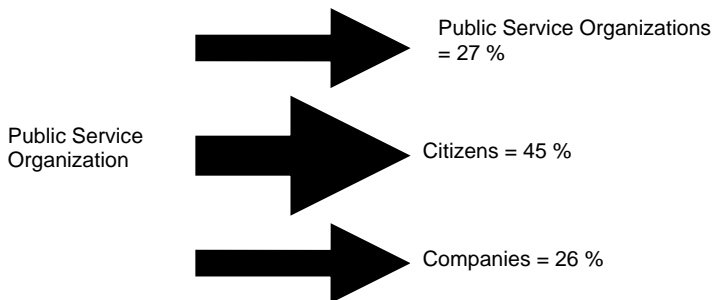


These three categories represent approx 65 % of the studied e-services. Three more categories (coordinated, general, and informative = 8 %, performative, individual, separate, general and informative = 7 %, performative, individual, separate, informative = 5 %) were also identified in this part of the analysis.

2 A Value model for e-services

The comprehensive view of the recipients of the e-services according to investigations made show a relatively even distribution aimed towards citizens, companies and authorities. The amount of e-services directed to citizens are slightly more than e-services directed towards companies (see figure 3).

Figure 3: Distribution of the studied e-services among different target groups



More detailed information about the targeted clients and of what value the use of the e-services may be to them is however missing in the data material. Such knowledge would have given considerably better clues as to the needs of both development of new services and quality-driven development of already existing e-services.

In order to arrive closer to such knowledge we will introduce some thoughts which can be summarized in a value model foundation for e-services.

2.1 Basic assumptions

Our point of departure is the thought that citizens and private persons, in companies or in other organizations, strive towards creating better conditions and living situation for himself/herself. Such point of departure will consequently include those associations, companies and organizations which the individual is loyal to.

In striving towards this, the individual basically has three aspects to consider:

- What do I/we want to achieve? (The Vision)
- What does the situation look like today? (The current situation)
- By which means do I/we go from today in order to arrive at desired goals? (the means to change)

A rational individual should also be able to reflect over whether the situation has become better after the realization of the three first points.

This model could simply be described by an example from the healthcare sector.

Individuals strive towards a healthy situation (The vision).

Individuals can investigate if they have a Healthy situation (the current situation).

Individuals can use different treatments to come from where they are today and closer to a healthy ideal.

Finally, the individuals can also judge if the treatment really helped in reaching a healthier situation.

Similarly, we acknowledge companies who by the help/"treatment" of "professional doctors"/business consultants strive towards excellence and a leading position. We also see that public services strive towards excellence and efficiency.

The individual, the company and the organization has to:

- have a conception of desired goals (i.e. how healthy we can become)

- have an ability to acknowledge the present situation (i.e. how sick or healthy one/it is)
- identify and decide among different potential courses of action in order to arrive at desired goals (i.e. identify feasible treatment)
- reflect over the effect of decisions made and actions taken (i.e. effects of made treatments)

The underlying assumption in the value model is that individuals, companies and organizations able to reach and further develop their “vision of health” have created a higher value for himself/herself and his/her surroundings.

2.2 E-services in the value model

According to this framework it is possible to say that all offers that could contribute to a healthier situation for the individual and/or the company/organization could be described as an good e-service.

Offers could be about:

- 1 help in creating visions and ideal future scenarios of what could be worth striving for (future hope/vision/goal)
- 2 help in revealing understandings about the present situation (problem awareness)
- 3 help to go from the present situation to a desired future situation (measures)
- 4 feedback about how offers, actions and measures taken has contributed to the arrival at desired visions

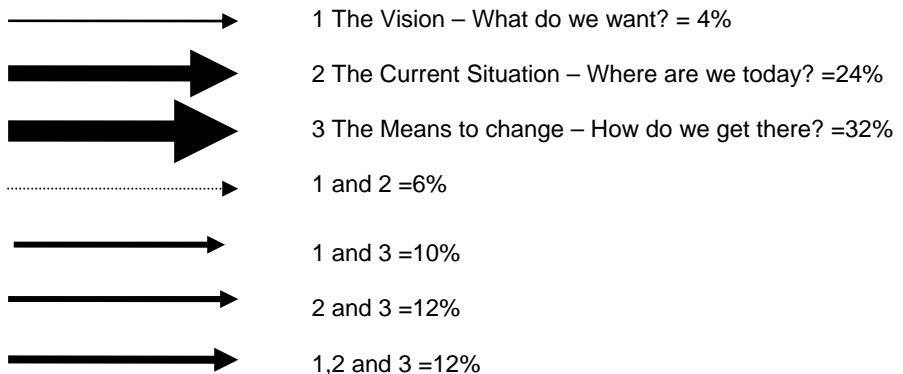
One can wonder why we talk about e-services when this line of argumentation could relate to many different services. Our answer to this issue is however in line with several of the e-service maturity models formulated by other scholars and professionals (see section 3). According to these models several steps or states can be identified. These stages represent a scale; from distribution of information to integration of several authorities in which the client is able to interact with services. All services can accordingly be regarded as e-services.

2.3 Analysis of existing e-services according to the value model

Out of the 335 e-services, the 50 first e-services in the questionnaire were studied with respect to division of vision, present situation, and measures to achieve the vision according to the value model. In such an exposition we acknowledge that a majority of the services (32 %) represent measures while a minority of the services (4 %) represent support for arriving at the vision (see figure 4). We also acknowledge that only 12 % of the services include all three steps: This is what we want to achieve, here we are today and these are the measures that the service offers.

In many of the cases when some part(s) of the model are left out this/these omitted part(s) are taken for granted. As for the example of healthcare, one could say that information about painkillers consists of information relating to a cure to a present state of pain. Services regarding feedback and democracy are seldom represented and could potentially be an integrated part of the pinpointed services.

Figure 4: Categorization of the first 50 e-services according to the value model



Expanding on the healthcare example, it could be said that more complete services according to the value model is based on information of how one may feel given

the fact that pain killers are ingested, as well as of a battery of questions following in order to identify the correct type of pain. In addition, there is a description of the treatment, i.e. the pain medicine as such and how to use it.

If the value model is applied in a consultancy setting one would probably state that a competent medical worker helps the client in a systematic way to gain knowledge about and/or consider goals, the present situation and measures to achieve the goal(s). In more advanced cases there will also be some evaluation of actions already taken.

From this perspective one could say that more complete services according to the value model, could complement advice given by consultants in order to yield better service to their client.

2.4 Visions as critical phases in life

In many e-service models one could anticipate a perspective on the life cycle with critical phases such as birth, child care, compulsory school, university studies, sports, leisure time, work, marriage, divorce, sickness, and death. Translated into the value model these critical phases represent different visions. One wants to have a child, leading one to want baby sitters, etc. From such a perspective the visions behind existing e-services could be identified and thereby different clues concerning the need for new e-services could be identified. On the other hand, we also see that the used questionnaire reveals a picture of rapid expansion of new e-services. Such an effort to identify clues might therefore be of less value.

This conclusion is strengthened by the fact that the amount of private service providers rapidly increases within what we traditionally have regarded as public areas, such as in the health care area. In the value model there is no distinction made as to whether e-services are distributed by public authorities or private companies.

The municipal portals represent an interesting development since these to a higher extent try to cover the citizens' critical phases in life. A key question with regards to this attempt is how private service providers are allowed to be present in the

portal. One can say that municipalities and authorities create a new type of market place for private and official service providers by making this possible.

2.5 Feedback and stimulation of the development of new and refined e-services

Even though we could not identify many services that allow for feedback, several municipal portals cover feedback services that aim to give input to new and refined e-services. Such services are often regarded as feedback leading to a learning experience for the organization. When the service covers a more extensive service influenced by several people the e-service is often regarded as a service aimed towards e-democracy.

2.6 Conclusions and the application of the value model

The value model makes it possible to view and measure e-services. The design of the value model is made with the purpose of contributing to a more valuable and qualitative development of e-services. According to the line of reasoning put forward above we claim that more complete e-services will contribute to more valuable e-services according to this model.

From this perspective the value model is a measure by which value can be achieved. However, it is as yet not possible to judge what the model is capable of. This can only be done when the value model is actually applied and results of such application are fed back into a reflective evaluation. We do however know that successful consultants act according to the basic principles of the value model.

The value model can also give us ideas for future developments of e-services. Among other things we see that:

- 1 It could be valuable to stimulate and evaluate e-services covering a comprehensive value model of vision, present situation, measures for arriving at the vision, and feedback.

- 2 It could be of value to stimulate and evaluate e-services integrating private and public service providers in order to maximize the value for clients of e-services.
- 3 Based on a value model, such as the one described here, we anticipate several new matching services in which goals, present situation and concrete measures are matched.
- 4 More complete e-services will according to the value model make it easier for individuals, companies and organizations to decide whether the service should be tried, tested and applied.

More generally, one could say that the exposure of an ever increasing amount of e-services makes it more vital to discover procedures which can examine the quality and value of those e-services.

3 Comments on trends in development of new types of e-services

Of the 335 e-services 228 have only a web interface. 90 have web interfaces and also support other channels. Only 14 of the e-services do not use the web as a channel. Today, there is intense development of new web e-services as well as alternatives to the traditional web. This is motivated by the overflow of websites and the difficulties users have in remembering them, their structures and passwords etc.

So far the dominating concept has been “the site”, i.e. a place or a home page on the internet that users surf to and use. Today, there is an unending amount of such sites with one or more servers. This phenomenon is the target of for instance the e-Me Project. This research project has found that the huge numbers of online e-services in itself is becoming a problem for many citizens. At the same time, there is a significant demand for new e-services. This phenomenon is referred to as the Electronic Service Paradox. (Albinsson et al, 2006)

This paradox is the force behind a number of developments that deviates from the “site model”. In the first part (section 5.1) we will present a necessary shift of perspective in e-service development and in the second part (section 5.2 and 5.3) we present a number of general trends in e-service development.

19% of the 170 surveyed services where the persons answering the questionnaire shared their experiences have commented on this area by discussing the problem of “reaching out to clients”, or have shared the insight that their service exists in splendid isolation.

3.1 A stronger citizen/client/user perspective in the development

The dominating development models put the organization first and views the client as being exactly the client of that particular organization. This yields the possibility of discovering which of the organizations' e-services the client should/need/must use. The design can then be "user oriented" and in varying degree engage the clients in the design.

The limitation of such an approach is that it is at all times controlled in the context of the organization. One such example is from the EU fifth framework project Avanti, aiming to develop municipal e-services for those with no experience of computers, for instance elderly. (Mousalli, 2001). Interviews with the target group revealed that the most desired service was email. For people most this was the natural step into the e-world, as they wanted to be able to receive for instance photos of grand children. However, the project management of Avanti did not permit the development of such a service because email was not regarded as a municipal service. The example clearly indicates that even in such a "user oriented" project, the limits are set by the organization.

One step in a new direction is the development of joint-organization e-services, where a number of organizations collaborate on the development of a service that spans across these. A more far reaching project is the e-Me Project whose starting point is with a targets groups' ideals as well as their living situation and then uses this to put demands on the service development of organizations.

Does the survey support this thinking? There are a number of comments where collaborations are suggested and also the sharing of user demands. They have realized that there are other related or similar e-services. There are also comments relating to the difficulties of "reaching the users" and getting the users to use e-services.

Excerpts from "experiences" in the survey:

"We see the need for increased collaboration to be able to really put the citizen in the center of development"

”Naming e-services, URLs and ways to find them is an underestimated field. We made the mistake of giving our service a somewhat cryptic and humorous name, from an internal standpoint. E-services should be named and given ‘addresses’ that are natural to the users.”

”The challenge is not to web-enable existing e-services but rather to develop good, effective public e-services regardless of how the public sector is organized.”

”Last but not least you shouldn’t forget to market the new e-service. You can’t assume that the e-service will automatically be used because it is there.”

”There are many players in the portal market, fighting for attention and space.”

”Marketing e-services and getting them used is costly. Common resources should be used and an overall strategy should be developed.”

”Collaboration between public sector organizations to reach a particular target group may be very effective.”

In the “organization centric” world common experiences would be used to duplicate or imitate e-services. In the new “citizen centric” world the similarities will lead to organizations developing common e-services for entire groups of citizens.

Our conclusion is that there is support for the new perspective in these comments, even if the respondents have expressed themselves from an “organization centric” point of view.

In the future they may start looking for other e-services their target groups need or want, both public and private, and try to connect them.

3.2 Web 2.0

WEB 2.0 is a collection of trends in Internet development that go beyond the traditional site-html-browser structure¹. Some of these are particularly relevant in this discussion:

3.2.1 Mash ups

A mash up is a website or web application that seamlessly combines content from more than one source into an integrated experience. One example could be a new site with a particular focus. The site will consist of articles from other sites on the same topic. The information is not copied, only linked into the site. Many shopping sites, for instance, do not contain their own payment service but rather links the purchase to a specialized payment service. The advantage is that the development is simplified, that things are not duplicated and that users may already be familiar with “mash uped” e-services.

3.2.2 RSS Feeds

RSS (Really Simple Syndication) is a standard for sending information to subscribers, as an alternative to having them go to a particular site. A university publishing test results on their site could offer students an RSS feed releasing results as soon as they are official without having to log on to the site. Users can control and also terminate subscriptions.

This gives the users advantages over for instance email, where the user can't subscribe to information and terminate subscriptions from their mail system.

3.2.3 SOA

SOA (Service Oriented Architecture) means that rather than build a complete system with data storage, business logic and user interfaces, a service should be built and used by other systems. For instance CSN (the Swedish National Board of Student Aid) give loans and grants to students and have their own complete system

¹ We don't detail these, but refer to for instance ex www.wikipedia.org

including a website for applications, etc. Using a SOA approach, they could develop merely the application management e-services and offer these as a regular type of loan as via retail banks. The student's bank would then manage the loan like any other. CSN could then dismantle their customer support centre, their call center and expensive web site.

The advantage is that only the unique parts of the system needs to be built and that it is possible to place existing infrastructure and portals in units.

There are many comments in the survey on the need for knowledge exchange on technical architectures as well as ideas on collaborative development. Some comments point at the high costs of developing a service from scratch, a service that may share many characteristics with other already existing e-services. The WEB 2.0 concepts are born out of similar experiences and even though WEB 2.0 didn't exist at the time the surveyed e-services were developed, the comments clearly indicate a need for corresponding development.

Excerpts from "experiences" in the survey:

"We have really seen the benefits of developing a common platform for many e-services. The platform is today used to developed many e-services and the cost of each is now very low."

"A small municipality doesn't have the resources to develop e-services on their own. We feel the need for more standardized tools and approaches for us to move on."

"e-identification would be very valuable to us, but we can't afford to implement it by ourselves."

3.3 Process Re-engineering

Several respondents indicate that they have discovered that many projects often involve more than just developing the e-service. In many cases the new e-service didn't fit as well into the organization, the routines and technology as expected. There simply wasn't any well defined process to put an "e" in front of. 19% of the

170 respondents commenting have experienced that the e-service also affects the organization in a larger perspective.

In business, a lot of time and energy is invested in re-engineering, structuring, and automating processes, which is an entire flow of activities, the last decade or so. The driving forces have often been increased quality and lower costs. In many cases this has created incentives for developing e-services, as it has been possible to connect them to existing and well defined processes.

What we now see is “e-ification” driving a new wave of process reviewing. Those not aware of the need to re-work an entire process, often scope the project too narrowly.

In the above mentioned Avanti project it also became evident that such process reviews vary, as the new demands on the process often rises from the outside clients. If they don’t feel that the new service is more comfortable to use they will not use it. Therefore, the drive for changing processes should not be internal efficiency – but rather the client’s point of view.

Excerpts from ”experiences” in the survey:

”There is an incredible potential in applying a holistic perspective on the development. In spite of the technology, it is still a key issue to develop the processes and the organization.”

”We see a need to refine our internal routines and systems before we can deliver e-services to the clients”

”The agency must change when developing e-services so you don’t computerize paper-based routines.”

”The entire flow needs to be adapted to the web; that is the back office routines must also be swift and automatic.”

”Remember that digitizing and quality assuring information often takes more time and costs than the development of systems and applications.”

”Review your processes before development and implementation”

We conclude that the development of an e-service may need to affect the organization in more regards than just the client meeting the web site.

4 Comments on the need for support and further research

Taking this study and the results from other research we are involved in, we can see new areas that need to be highlighted and supported in future e-service development.

4.1 A strong community with IT-support

Both the respondents to this survey and elsewhere the need to share experiences, systems and solutions are pointed out. There are several communities of interest already started, for instance by the EU Commission. Some are somewhat successful while others disappear rather quickly. However, everyone seems to agree, that there is great potential in this area, both in lowering costs and increase in quality.

There is however a lack of common knowledge and experience in how to start and run such communities. This is an important field where several international initiatives are being launched, and should be supported financially.

4.2 New types of marketplaces

A lot of new "marketplaces" begin to establish themselves around public e-services. For instance portals produced by communities with common interests such as patients with similar medical diagnoses. Some companies are also starting to help people with public matters like building permits. In many countries there is an increased blurring of the borders between public and private e-services, for instance as public organizations are privatized. The Swedish Lantmäteriet (national land surveyors) is for example increasingly charging consulting fees for e-services previously regarded as a public service. There is today little research on these new marketplaces where public and private interests meet. In general, debates about

these are often presented as marginal or problematic. In our opinion a lot of economic growth will occur in connection with these public/private marketplaces. Therefore research on how to make them work effectively is of great value.

4.3 The Citizen perspective as a driving force

Present day research and development is dominated by an organization-centric perspective; e-services are designed by an organization and then offered to the citizens. Concurrently we see examples of a new development where design takes its starting point in the citizen. We think this new type of development should be followed and encouraged more. The Swedish Vinnova programme for e-services crossing organizational borders is a step in this direction. We would however like to point out that even the majority of the projects are driven by organizations and the e-services contexts are set by them. There are no explicit requirements for these projects to be dominated by the citizen's interests. There is very little research into what a public sector would look like if it was designed with citizens at the centre. We would like to see work on this in which would also indicate future possibilities.

4.4 Improved methods and approaches

As pointed out by many respondents' current methods and practices these are insufficient to secure citizen participation in the design of, and influence over, public e-services. For example, we can foresee a future merging of methods for e-service design and processes for e-democracy. Current research is dominated by a differentiation; that design of e-services is regarded as a task for public organizations, while e-democracy is about design of policy. We see a need for research where design and development of e-services is viewed in context of learning and e-democracy.

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VINNOVA's mission is to promote sustainable growth
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and developing effective innovation systems

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