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Young Scientists for E-Government
European PhD Consortium 2005 in Copenhagen

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The following brochure documents the results of the European PhD Konsortium which took place in Copenhagen August 22-25, 2005 providing a platform for the young scientists and served as an impulse for bringing more academic forces in action. A number of the European Universities were pleased to be represented at the PhD Session. Young scientists from Denmark, Norway, Austria, the Netherlands, Sweden presented their research papers which cover a wide specter of the E-Government issues: E-Services and E-Democracy, organizational structure and value awareness, E-Learning and E-Employment – topics, that belong to the actual questions discussed among the E-Government community. In the brochure, selected articles in original text are accompanied with the information about the authors as well as their home university. This brochure contributes to the establishment of the pan European expert network.

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Der vorliegende Band der Alcatel SEL Stiftungsreihe stellt die Ergebnisse des ersten „Europäischen PhD Konsortiums", vom August 2005 in Kopenhagen vor. Ziel dieser Veranstaltung war es, insbesondere jungen Wissenschaftlern ein Forum für wissenschaftlichen Austausch zu geben und weitere Forschungsarbeiten anzuregen.

Junge Wissenschaftler aus Dänemark, Norwegen, Österreich, den Niederlanden und Schweden stellten ihre Forschungsarbeiten vor. Unter dem großen Rahmenthema „E-Government" waren die Inhalte Einzelbeiträge sehr breit gefächert – sie reichten von E-Services und E-Demokratie über Organisationsstruktur und Nutzenbewertung bis hin zu E-Learning und E-Employment. Alle Themen sind durch ihre hohe Aktualität gekennzeichnet und bilden den Mittelpunkt vieler Diskussionen in der E-Government Community.

In der Dokumentation werden ausgewählte Beiträge im Originaltext durch Informationen zum Autor und zu seiner Hochschule ergänzt. Diese Broschüre richtet sich insbesondere an Fachleute aus dem Themengebiet E-Government und soll einen Beitrag zur Etablierung eines Europäischen Expertennetzwerks leisten.

EGOV 2005 in Copenhagen
Roland Traunmüller

The annual EGOV conference series assess the state of the art in e-government and e-governance, providing guidance for research, development and application in this fast-moving field. EGOV 2005 in Copenhagen builds on the achievements of the preceding conferences (EGOV 2004 in Zaragoza, EGOV 2003 in Prague, EGOV 2002 in Aix-en-Provence). The EGOV conferences have become a reunion for academics and professionals – they are the biggest scientific conference on Research and Development in e-Government. In that way, EGOV conferences provide both, an exchange on the state of affairs concerning e-government developments and a ground in networking and building the community. With a growth from 100 to 180 within four years the EGOV conferences prove somehow the maturity of the discipline.

The EGOV conferences are part of the DEXA conference cluster that covers a large sector of ICT applications. DEXA started with databases and expert systems (therefore the acronym) in 1990, later added different workshops and the conferences of e-Commerce and e-Government and quite recently has added the conferences on trust and security as well as on agents and web semantics. In this cluster the EGOV conference (180 attendees) shows to be the second largest community. The progress can be seen by the fact that EGOV already closely pursues the attendance of researchers in the database field (which is a scientific discipline existing for three decades).

An annual conference bears a message: e-Government is both, a Vision and a Construction Site. Consequently, a considerable set of themes is covered in several streams: Visions, challenges and frameworks; Policies and strategies; Methods and tools; Technologies; Design Aspects; Interoperability and standards; Knowledge management and semantic modelling; E-participation; Electronic services; GIS (geographical information systems); Monitoring and Performance indicators.

EGOV 2005 has brought some changes in the outline and structure of the conference. In line with the growing number of submissions

Prof. Dr. Roland Traunmüller, Director of the Institute for Informatics in Business and Government at Linz University (Austria), General Chair of the EGOV conference and EGOV PhD Kolloquium 2005

"e-Government is now a recognised scientific discipline with several doctoral thesis' going on."

the conference has been more structured and new features have been added. First, the reviewing process has been more formalised by adopting a double blind peer review procedure. The new design of EGOV safeguards scientific quality and up-to-date information together with a discussion of the state of the art and of emerging themes in the field.

Second, a PhD Consortium has been added in cooperation with "Alcatel SEL Stiftung" – Scientific Foundation for Communications Research. The PhD Consortium reflects the fact that e-Government is now a recognised scientific discipline with several doctoral thesis' going on. The success of the PhD Consortium is documented in the following pages.

As General Chair of EGOV conference I would like to express gratitude towards those who have made possible the PhD Consortium: the Consortium Faculty and "Alcatel SEL Stiftung" for cooperation in establishment.

Copenhagen Business School welcomed the participants of the PhD Consortium

Fostering Science for E-Government
Dieter Klumpp

Some reasons should be given why "Alcatel SEL Stiftung" is fostering PhD activities around DEXA conferences (like Copenhagen, 2005) and Eastern European e|Gov Days (Prague, 2006). First of all, PhD is undoubtedly mere science, and therefore for a scientific foundation this means an excellent opportunity to fulfil the target to give helpful pushes to the scientific offspring. Helping the youngsters to achieve the highest university graduation and/or encouraging them to strive for a best paper award can be seen from both a philanthropic and a practical angle. The practical one is to get our scientific offspring as soon as possible in contact with the mostly non-academic realities as in this case "government" means.

And reality in the governmental sector is complicated everywhere – in Europe and all over the world. Since thousands of years "government" always and inevitably means that by societal organisation individuals impose rules for themselves which must be respected. Of course, the more elaborated the rules develop, the more of his personal liberties each individual must give up, and every frameset of rules must appear as "bureaucratic" procedure which hampers everything from fantasy over time autonomy even to the pursuit of happiness.

Out of all dreams the "fully automatic government" is the less realistic, one can even say that automatization even endangers liberties and freedom. So, in the dawn of "electronization" of the government it is strictly necessary to avoid accumulations of ever finer "elaborated" rules (which necessarily comes out of the science-based proposals) by creating countervailing powers including the citizenship. In the information age such countervailing powers can be seen in e-Participation, in e-Mediation and last but not least in securing the liberties to information access. The Copenhagen PhD Consortium had a special focus on topics from this field. Science must secure – whenever participating to shape our future – the conservation of the outcome of all results achieved so far. Government shall not grow into bureaucracy or even tyranny, and E-Government should make government bet-

Dr. Dieter Klumpp, Director of the Scientific Foundation for Communications Research "Alcatel SEL Stiftung" (Germany), Co-organizer of the EGOV conference and EGOV PhD Consortium 2005

"PhD is undoubtedly mere science, and therefore an excellent opportunity for a scientific foundation to fulfil its target and give helpful pushes to the scientific offspring."

ter, not worse. Computerization means great opportunities to make administrative processes more effective and more transparent, but at the same time opens the door to the hell of total surveillance of the individual.

This is one of the several reasons why science must be confronted with reality in this early stage of academic education. Administration sciences (which are located quite near

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to economic sciences) need the impulses as well from social science, and a special contribution from communication science. Thus E-Government process as isolated one-way data stream, gets its complementary out of human-based interaction and interdisciplinary cooperation. And, above all, the circle of practical and philanthropic reasons to foster young science closes harmonically.

Scientific Foundation for Communications Research "Alcatel SEL Stiftung", on request of the scientific chairmen of the conference, awarded best paper (selected by the jury) and supported the organization of the Consortium in order for the young European scientists to bring their reflections into the scientific and the E-Government communities

Dr. Dieter Klumpp and Prof. Roland Traunmüller with the Best Paper Award Winner Øystein Sæbø (Norway)

PhD Konsortium in Copenhagen
Maria Wimmer

The annual international EGOV conferences extensively support the networking of people within the community. These conferences are likewise a forum for young researchers to meet experts in the field and to collect a wide range of research insights from the field. EGOV is a suitable platform for PhD students to get known senior researchers as well as experts from the application field in their respective topic of doctoral works.

On this basis, the organising committee of EGOV 2005 has called for a first eGovernment PhD colloquium adjoined to the conference. Several important objectives guided the decision:

➢ PhD students should have a chance to meet in order to
  - present their work to colleagues and exchange experiences on their doctoral works;
  - get guidance and feedback from "external" senior experts on their PhD excerpts submitted beforehand;
  - get an overview on the eGovernment research landscape and on which aspects are crucial in elaborating a PhD thesis through presentations and discussion of the senior experts;

➢ PhD students should get to know how a research community runs. The PhD colloquium should provide an environment, where doctoral students and senior experts exchange experiences about the importance of joining a community, about the services to and within a community, and about the role of researchers in a community.

➢ PhD students should have a chance to network among themselves. Unfortunately, no eGovernment PhD community exists at present. The EGOV PhD colloquium 2005 should provide a first attempt to enable PhD students themselves to get active in establishing such a networking among themselves.

Since young researchers - and especially PhD students - will become the future experts of the field, it is crucial to introduce the basic principles of how a community runs early in their career. Because the field of eGovernment research is still to be shaped, is flexibly and dynamically growing and needs to be further settled, the support from young researchers and them knowing the community becomes a key criterion for the future existence / future shape of the field.

To foster the implementation of the above listed objectives, the PhD works are being published under the auspices and with the support of Alcatel SEL Stiftung – Scientific Foundation for the Communications Research. In this respect it is to be stressed that Alcatel SEL Stiftung's philosophy fits well into the above goals to foster the development of an eGovernment research community.

In order to design the programme for the PhD colloquium, the organising committee of EGOV has called for excerpts of PhD works. Eleven submissions have been made covering topics on eDemocracy, knowledge structuring, eGovernment reference architectures, management of eServices at regional and local level, eGovernance and value assessment. Nine submissions have finally been selected to be presented and discussed at the PhD colloquium. The excerpts are covered in the brochure at hand and are summarised below.

The thesis of *Øystein Sæbø*, Agder University College, Norway, is about "*Designing eDemocracy Systems: Being Specific by Explicit Identification of Democracy Models and Genres*". His work investigates how to design

Prof. Dr. Maria A. Wimmer, University of Koblenz-Landau (Germany), Co-organiser of the EGOV conference and EGOV PhD Kolloquium 2005

"PhD students should have a chance to meet! Young researchers will become the future experts of the field, and it is crucial to introduce the basic principles of how a community runs early in their career."

eDemocracy projects to support the communication between citizens and politicians. Thereby, Sabo uses genre theory to identify specific characteristics of eDemocracy. Based on these insights, he develops a framework for the design of eDemocracy projects and reports his experiences from an action research project in the course of the thesis work. For his thesis excerpt and presentation at the PhD colloquium, *Øystein Sæbø* has received the Best Paper Award.

The next two doctoral works investigate **participation, democracy and eLearning**.

Signe B. Segaard from the University of Oslo, Norway, elaborates the research question "*Can ICT Promote Democratisation of Planning and Decision Making Processes at Local Level?*". She bases her work on ongoing debates in the Scandinavian countries on how to make the relation between the national, regional and local levels of government more effective and citizen focused. The research question is whether ICT can contribute to establish more democracy and more user participation, and if so, what the preconditions and requirements are. Her research is based on political science theory.

Gertraud Orthofer and *Michael Leitner* from the University of Linz, Austria, report from their work on "*Developing an eLearning*

Tool for unemployed people and persons with special needs". In this paper the definition of the term Virtual Learning Environment (VLE) and the requirements for Virtual Learning Environment are treated. Afterwards a EU-project Leonardo da Vinci, is presented which has the aim to produce a Virtual Learning Environment. This Virtual Learning Environment should support education and training for occupations in the Internet field.

The following PhD works presented cover themes on **reference architectures for eGovernment**.

In his PhD excerpt "*From Drift to Control: Managing Enterprise Architectures in Government*", *Kristian Hjorth Madsen* from the IT University of Copenhagen, Denmark, investigates enterprise architectures (EA) at different levels of the public sector. Based on a project among the National IT and Telecom Agency, IBM, KMD and the IT University, he scans research literature on interoperability, systems integration and governmental reference architectures. Further on, he assesses the impact of the Danish national EA approach to create interoperable solutions and to provide inter-organisational cooperation at all levels of government.

Jeffrey Gortmaker from the Delft University of Technology, The Netherlands, works on

"*A Reference Architecture for Designing Process Orchestrators in eGovernment*". He starts from the preconditions for, and problems of current fragmentation in cross-organisational solutions for integrated eServices provision. He investigates approaches of service-oriented architectures (SOA) and web services. On this basis, he elaborates the requirements for a reference architecture that supports the process orchestration in eGovernment systems. The following cluster of PhD theses can be aggregated to **eGovernance and value assessment**.

In his doctoral work, *Leif S. Flak* from the Agder University College, Norway, works on "*Understanding eGovernment Complexity: A Stakeholder Based Approach*". He focuses on complexity in eGovernment projects thereby investigating the effects of complexity in the implementation of eGovernment. His doctoral work bases on stakeholder theory. He adjusts it to accommodate the characteristics and values of the public sector, as well as the implications of adding information technology to the model of governance.

Emma Eliason from the Örebro University, Sweden, investigates the "*Value Awareness in Municipality Website Design*". Her objective is to identify reasons for, and consequences of expected and/or experienced values that are mediated in municipality website design. Thereby, she demonstrates how genres restrict and support a designer's work, and how a specific web site design communicates these values. Apart from understanding the impacts of genres in website design, the doctoral work should provide a means to better understand the value awareness in municipal websites.

Designing e-Democracy Systems: Being Specific by Explicit Identification of Democracy Models and Genres

Øystein Sæbø

Øystein Sæbø is a research fellow at Agder University College in southern part of Norway. He is a PhD student at Aalborg University in Denmark. His research is in the field of E-Democracy, looking at how to utilise Internet for communication between citizens and politicians. The PhD is planned to be submitted by the end of 2006. So far, the project has resulted in four conference papers and one journal publication.

1. Introduction

The Ph.D. project focuses on how to design e-democracy project to support the communication between citizens and politicians. An initial investigation of online communication identified different aim for participation, objective and purpose of participation between politicians and citizens. The digital genre was not initially shared. Based on this identified gap, the project aims to contribute to the design of e-democracy genres responding more accurate to the aim for those groups and more explicitly addressing the cybergenre of e-Democracy. By identifying genres for e-Democracy, developing a framework for the design of e-democracy project and communicating experiences from an Action Research project, the Ph.D. project aims to improve the knowledge on how to identify different objectives and how to explicitly address those issues when designing genres in e-democracy projects.

2. Justification for Research Theme

Western societies are facing decreasing voter participations. In the Norwegian local election in 2003, only 58, 8% voted - the lowest turn-out since 1952 (Statistics Norway, 2004). Voter turnout is decreasing in other western democracies, and the turnout is especially low among young people (Briony, 2003). There is therefore a challenge for these democracies to engage people in important community issues and to try to involve citizens in political and democratic processes (Hague and Loader, 1999).

New technology has changed the conditions for communication and coordination between individuals and businesses (van Dijk, 2000). This has led to an increased interest in how to utilize new technology to increase participation and involvement in democratic topics. This is evident in action plans such as eEurope 2005 (European Commission, 2004) and eNorge 2005 (Norwegian ministry of trade and industry, 2004).

There is also an increased research interest in E-democracy and related topics made visible by new academic conferences and journals. However, there are few research contributions focusing on the connection between the overall democratic objectives and the choice and implementation of technology. Although democracy is often assumed to be well-understood, there are many different

models of democracy within political science and many versions of democracy in different societies. It follows that E-democracy projects face different conditions in different political situations (Hagen, 2000). Different ICT artefacts may support different democracy models, but the connections need to be investigated (Tops et al., 2000). Differing stakeholder expectations may create problems for the design and implementation of such systems. Most reported projects do not relate the overall democratic objectives to the choice of technology.

3. Initial Research Questions

How does an e-democracy project responds to requests from different stakeholders?

Increased focus on E-Democracy projects implies a need for a better understanding of how IT can relate to different democracy models (van Dijk, 2000). The democracy models identify characteristics which can be used to investigate requests from politicians and citizens in democracy projects. A content analysis of contributions on an online discussion forum indicated different objectives from citizens and politicians on how to utilize the communication genre. This identified gap between major stakeholder groups laid the groundwork for the upcoming research questions.

What are the possible genres for online political discussions?

To be able to design digital genres supporting online political discussion, the different possibilities have to be identified. By reviewing current e-democracy literature, genres for online political discussions supporting different democracy models are identified. Identifying the objectives and purposes in an e-democracy project (the democracy model behind the project), our contribution can illuminate the choice of genres to achieve these objectives.

How to design an e-democracy system supporting to major stakeholder groups with a limited shared understanding of the genre involved?

The case study unveiled differences between how politicians and citizens understood the genre of an online discussion forum supporting political discussions. By reviewing literature, few successes are identified among many reporting minor influence by the e-democracy projects on real politics. Knowledge from the case and the literature review make the ground for participation in an action research project. The project focuses on how to increase the influence by explicitly addressing issues of high importance for the two major stakeholder groups.

4. Theoretical Background

Models of Democracy

Democracy is an important topic in the field of political science. A common way of characterizing different forms of democracy which may appear in practice, or be worked towards as ideal types, is the 'democracy model'. Lively (Lively 1975), for example, discusses different ideal types of democracy in terms of the majority principle, and the extent of citizenship and political equality. Held (Held 1996) offers nine models (ideal types) of democracy: Classical, Protective, Developmental, Autonomous, Loyalist, Competitive, Plebiscitary, Pluralist, Participatory. A related strand of literature addresses the relationship between Information and Communication Technologies (ICT) and forms of political organisation (so-called Digital Democracy). Thus van Dijk (Van Dijk 2000) analyses the place of information and communication in relation to five of Held's ideal types. He considers the models to be primarily distinguished by whether the primary goal

of democracy is opinion forming or decision making, and whether the primary means of democracy is through representatives, or directly enacted by citizens. He describes four roles for ICT: allocation (one way distribution of information), consultation, registration (central collection of information including balloting) and conversation. He also adds a sixth model (Libertarian) which emphasizes 'autonomous politics by citizens in their own associations using the horizontal communication capabilities of the internet (p.45).

A related, but simpler system of four democracy models is introduced by Bellamy (Bellamy 2000). These models have been used elsewhere in the digital democracy literature for various analytical purposes (Hoff, Löfgren et al. 2003). The four models (consumer, demo-elitist, neo-republican, cyber-democractic) serve as 'logically coherent constructs abstracted from specific social settings or from competing political values'. They seek to 'ground electronic democracy in a set of rival discourses connecting democratic values to technological change' (Bellamy 2000 p.33). The models share their starting point in the representative (constitutional) democracy of Western Europe, primarily understood (in common with Held's Protective democracy) as an instrument for defending personal or sectional interest.

Genre for organizational communication

Genre theory of organizational communication addresses that introduction of new ICT and media, such as those mentioned in connection to e-Democracy above, changes the enacted patterns of communication through the process of social structuration (Yates and Orlikowski, 1992). The concept of genre focuses on the shared ideas of purpose(s) and form(s) of communication patterns among the stakeholders of a community (Yates and Orlikowski, 1992) in a particular window of time. Although many genres will never be fully shared among the stakeholders of communication (Schultze and Boland, 1997), a particular genre repertoire can be proactively and purposefully debated on and updated over time, especially in connection to information systems development initiatives that introduce new ICT (Päivärinta, 2001). Actual communicative actions taken by the members of the community in question can cause explicit elaboration and implicit evolution (Yates, Orlikowski and Okamura, 1999) creating new genres, reshaping the existing ones, decreasing common understanding (Schultze and Boland, 1997), or nullifying importance of some genres from the total genre repertoire as received by the stakeholders (Yates, Orlikowski and Okamura, 1999).

The literature on e-Democracy speaks largely of general-level democracy models without operationalizing them much towards actual communication practice (van Dijk, 2000; Tops, Hoff and Horrock, 2000). Another trail of research introduces particular applications of modern ICT without delving much into the social structuration processes in the communities facilitated by and around the technology (Briony, 2003; Agre, 2002). Further examination of genre theory in relation to e-Democracy will most probably provide fruitful insight into the field by discussing new possibilities of technology in relation to the focused topics provided by particular genres identified relevant. On the other hand, the e-Democracy field involves numerous heterogeneous stakeholders (read: citizens) thus posing an extreme challenge of building easily comprehensible, still communicatively powerful, genres to be promoted in the digital media.

5. Research Approach

5.1 Philosophical stance

The Ph.D. project investigates the consequences of using ICT to support Democracy. The focus is how ICT is a part of, and contributes to, a social system (Democracy). The researcher takes IS to be a social system with technical implications. Research from this point of view would have to seek answers in social structures, but would also try to explain how the technical structure is influenced. Hirschheim (2003) points on the importance of understanding knowledge as a socially constructed convention related to time and space. The results depend on the actual setting and are not considered to be the true independent of the characteristics of the democratic society investigated. This has implications for the research, where findings have to be understood in their context. The context is a part of the explanation and therefore has to be investigated to be able to illustrate consequences and influences in the connection between ICT-artefact and models of democracy. Research method

The Ph.D. project will be based on interpretative studies. Such studies are well suited to investigating IS in its context and how IS influences and is influenced by the surrounding processes. Klein and Myer's principles (1999) form the basis for the interpretation and data gathering in these cases.

In the case study content analysis was conducted investigating the contributions made in the discussion forum. Content analysis provides 'a relatively systematically and comprehensive summary or overview of the dataset as a whole' (Wilkinson 1997). It operates by observing repeating themes, and categorizing them using a coding system. Categories can be elicited in a grounded way (built up from the data) or come from some external source (in this case a theoretical model). Simple quantitative content analysis produces counts of the respective frequency of occurrence of the categories, with the inference that higher counts imply some form of significance. Since these simple counting methods divorce occurrences from their context, much information relevant to the interpretation of the source material is inevitably lost. This can be somewhat rectified by adding qualitative content analysis (Wilkinson 1997): a form of discourse analysis where the thematic categories are studied in their location in the source text, where the addition of context can help to identify additional relevant factors such as irony and sub-textual meanings.

The literature review is conducted based on Webster and Watson's principles (2002). By summarising current literature from the relative immature field of e-democracy, current status and areas for further research can be presented. The literature is also needed to locate the Ph.D. project in the current strand of research.

An action research project will involve different research methods. According to Checkland and Howell (1998) the framework and method has to be declared after entering the real world situation and defining different roles. Currently the action research project is in its initial phase, and methods are therefore not yet defined. Different interpretative data gathering methods like observation, analysis of texts and documents and interviews are all suitable methods for collecting the data (Silverman, 2001).

5.2 Case study

The case investigated was an online discussion forum set up for political discussion for one local- and two regional municipalities in the southern part of Norway (The Democracy Square). The Democracy Square was set up with 25 discussion categories reflecting subjects of expected local political interest. Contributors were able to initiate sub-threads

in the categories. Entries in Democracy Square were exclusively textual and in principle they form a document which can be analyzed by any recognized form of textual analysis. Content analysis (Silverman, 2001) was chosen as the analysis method because the theoretical model outlined above offers clear initial analysis categories.

5.3 Action research project

The action research project is currently in an initial phase. The project will take place in a local municipality in southern part of Norway. The municipality has some experiences from other e-democracy projects, and has for a long time been focusing on citizen's involvement in the political processes and debates. We have been involved in one project were citizens were asked to participate in discussions online on predefined local topics. Experiences from this project will be considered when deciding how to designing the upcoming action research project. Some preliminary lessons learned from the ongoing project, the case study and the literature review lay the groundwork for designing the project. Those results are:

- Be specific what kind of democracy is desired by the stakeholders early in the project. Specify the democracy model in the first place.
- Define each genre of the new e-democracy system explicitly.
- Be specific how e-democracy communication genres relate to actual decision-making processes. Identify the relationship to the decision-making process.
- Make it possible for citizens to discuss about timely topics about targeted matters to gain meaningful involvement and impact on the related decision-making processes.
- Make design also attractive (e.g. for youth) with a participatory development process.

Be specific about how each development stakeholder communicates with each other during the development phase.

- Make relationships of e-democracy genres and traditional genres of political communication explicit – they need to exist in parallel, preferably so that information is exchanged in between.
- Be explicit, how to make people and public know about new e-democracy genres.
- Utilise other genres to communicate to increase public awareness of new genres.
- Empower users of e-democracy with explicit means for "meta-communication".
- Make explicit genres for meta-communication about the project itself.
- Controversial topics and attracting opposite views increase participation. Design for the purpose of attracting different views.

6. Expected Results and Potential Significance

It is expected that the project will result in a scientific description of the problem of how to design ICT artefacts to best serve different democracy models for different major stakeholders. For example one theoretical result could be a framework identifying how characteristics of different democracies, different communication genres and different stakeholder's interests can be managed when choosing and designing ICT artefacts in e-Democracy projects. It is expected that these results will have potential significance within the area of understanding of how IT influences democracy in their different forms and how to design digital genres for political discussions. The project will contribute to the design of new and better utilization of ICT in e-democracy projects.

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Agder University College, Norway

Agder University College is located in southern part of Norway. One group of Information System researchers is focusing on E-Government. The group is active in European and Scandinavian research networks. Scandinavian research has a long tradition for cooperating with users in their organisations. Agder University College is within this tradition, striving for research which shows importance in organisations. The research community has extensive collaboration with different stakeholders in the E-Government field.

For more information see: *http://www.hia.no/oksam/english/index.php3.*

Can ICT Promote Democratization of Planning and Decision Making Processes at the Local Level?

Signe Bock Segaard

Signe Bock Segaard is a PhD candidate at Department of Political Science, University of Oslo. She writes her PhD thesis on the use of ICT in a democratic perspective in Norwegian and Danish municipalities. She is focusing on how organizational elements in the development processes of e-Democracy influence the final results – as regards what kinds of technological applications and democratic considerations and values that are emphasised during the processes.

1. Introduction

Based on experience from research projects on ICT as a democratic tool at local level the intention of this PhD-thesis is to integrate ICT in a political science study which focus is on how democratic elements can be promoted in planning and decision making processes at local level.

Three keywords are:
1) Local democracy 2) ICT 3) Public planning and decision making processes.

One question is whether new information and communication technology (ICT) is a possible instrument of solution and if so, under which preconditions.

2. Project

2.1 Way of presenting the problems and questions

This section will specify the problems in focus and in this way give attention to different aspects and levels in the search of critical factors and conditions of success in electronic based democratization at local level.

As a point of departure it will be usefully to make a descriptive study and overview of the reasons and arguments in municipal pro-

jects which goal is to use ICT as a democratic tool in relation to public planning and decision making processes. This can be done in relation to the concept of e-democracy (and e-government) and will clarify to what degree the municipalities are aware of the democratic potentials of ICT. A study like this will be based on analyses of documents and declarations of intent attached to the individual municipal projects, and interviews with central political and administrative persons in the municipalities.

A focus on municipal level makes it of interest to ask how the municipal tries to engage the citizens in planning and decision making processes by means of ICT. The question highlights the real use of ICT applications (technological dimension) and how the municipality use strategies of marketing for promoting citizen participation. More concrete it is relevant to look at what kinds of ICT-based citizen systems that are installed on the official municipal website? Do the systems stimulate two-way communication or are they based on one-way communication only? Do the users of the systems have a real opportunity to influence the political agenda and thereby political planning and decision mak-

ing? This aspect refers to how the citizen systems operate and are integrated into conventional processes of planning and decision making at local level. The question gives in this way attention to organizational and institutional aspects attached to using ICT as a democratic tool at local level.

More concrete the focus is on the work and choice of ICT applications in relation to engage citizens and thereby stimulate more active participation in local policy. As background information it will be fruitfully to map out the opportunity spaces of ICT regarding to the possibilities that operative ICT systems give for promoting democratic elements in planning and decision making processes.

Organizational and institutional aspects of a public planning and decision making process can also be studied as a dependent variable where the focus is on what kinds of processes the municipality choice when ICT is integrated as a democratic tool? In relation to this it will be relevant to make a classification of ICT-based processes and try to explain why and under what conditions a municipality choose one type of process rather than another. Culture and tradition at municipal level will be relevant independent variables in this respect.

In a comparative perspective it will be of interest to bring into focus to what degree there exist differences between municipalities concerning the ability to develop/implement/-run ICT based citizen systems. – What kinds of factors explain differences in the ability? Organizational and economic factors will be of relevance, but also national factors which will be highlighted through a Nordic dimension in the project. Do differences exist in the national policy setting that cause differences in condition of the ability to develop/implement/run ICT based citizen systems?

Finally and in relation to the findings and answers on the above questions the study will bring into focus to what extent the citizens de facto are mobilized/engaged in local planning and decision making processes stimulated by means of ICT applications. Quantitative studies of how many citizens and which citizen groups will be complement by a citizen and net user survey. As the same time it is the intention to highlight and explain differences in citizen involvement in regard to variations along different dimensions and levels:

· The technological base and the ICT application
· The use and perception of ICT in relation to the citizens and planning and decision making processes
· Organizational and institutional aspects of the formal setting
· The subject in focus
· The localization, type and role of the municipality in a national context
· The degree of union in the municipality; is there a tradition of collective involvement?
· The level of ICT-competence of the citizens.
· The structure of interests of the citizens.
· The political identity of the citizens.

2.2 Conceptual framework

When throwing light on the question "Can ICT promotes democratization of planning and decision making processes at local level?" it will be fruitfully to give a more explicit formulation of the conceptual framework and in this way define the most central words. At the same time this will delimit problems and focus of the project. The clarification of the conceptual framework will also help to clarify the empirical cases with regard to what the study describes, analyses and discusses. - A challenge by doing this is on the other side not to force the project into a framework that obstructs an open minded attitude towards the cases and data.

The selection of concepts that will be defined and discussed is based on considerations about which conceptual elements those create the basis framework and in this way form a general conceptual frame of reference. The conceptual frame of reference forms the frame of the analysis and discussion wherein the theoretical perspectives and the empirical data are confronted.

The central words and concepts must be considered in relation to each other because very often the individual meaning of the concept depends of the meaning of the other concepts. The conceptual framework of the PhD-thesis includes the following concepts: 1) Information and communication technology (ICT) 2) Local politics 3) Democracy and e-democracy 4) Participation 5) Planning and decision making processes.

Information and communication technology (ICT)

The concept of ICT covers an empirical phenomenon that is difficult to understand if the context is not taking into considerations. I will argue that technology in itself is neutral (nor good or bad), but in fact does something with the surroundings, and the people and institutions which are affected by it.

ICT will be considered in relation to the meaning of the individual words: information, communication and technology.

Local politics

Politics at local level is delimited against a bigger sphere, at the same time as local politics interact with this bigger and surrounding sphere. Local politics will more concrete refers to a limit territory, the municipality, and imply proximity between citizens and politicians in the governance of the municipality. In this way local politics refer to political communication in the public sphere, and will in this connection be looked at the light of Habermas (1989) and Easton (1953).

The base of legitimacy of local politics is related to two historical roles of the municipality (in the Nordic countries). First of all the municipality is a political agency with focus on decision making, participation and democratic values. After Second World War the Nordic municipality also became an important administrative agency with focus on service to the citizens. The focus of the first role is on the process of political activities, whereas the focus of the second role is more on the result of the process.

The focal point of this PhD-thesis will primly be on the democratic role of the municipality.

Democracy and electronic democracy (e-democracy)

Democracy is a historical concept with roots back to the old Greeks. The idea of democracy and refers to government of and by the people and to a political order consisting of norms and rules for political communication and decision making. The point of departure will not be the historical concept of democracy but a concept that is related to the modern society; even if some ideas are the same independently of the historical context.

In highlighting the concept of democracy the thesis will use Robert Dahl (1989) and his four criteria for a genuinely democratic process (1989:108-114, 120):

· Inclusion
· Effective participation
· Enlightened understanding
· Control of the agenda

These four criteria are what Dahl call "ideal standards" (Dahl 1989:108) which implies that "any process that met them perfectly would be a perfect democratic process" (Dahl 1989:109). The five criteria also indicate how to evaluate a process with regard to its democratic qualities.

In connection with the first kind of municipal role e-democracy refers to the use of

ICT-based tools for strengthening political democracy and/or citizen participation in democratic communication (Hacker and van Dijk 2000:1). It is not obvious which conventional model(s) of democracy e-democracy exemplifies; it depends on the values in focus, the choice and use of ICT-applications and the context in which e-democracy is implemented. At the same time it is obvious that e-democracy at local level in its nature is directed towards the citizens and the local community (as conventional democracy) and towards the use of ICT as a democratic tool (a consequence of "e").

E-democratic perspectives on citizens stress the deliberative qualities of the human being. It means that the citizens are assumed to reflect on social conditions and express their opinions in ongoing debates by the use of ICT/electronic tools. This is an important contrast to the perspective on e-government which considers the citizens as customers and clients with different needs and desires.

A relevant question according to e-democracy in relation to conventional democracy is: What different does "e" make? Does "e" have any effect, - both on the concept of democracy and the practice of democracy in real life?

It is possible to consider e-democracy as a consequence of general development in our society. The electronic dimension of information and communication reflects a more individualized society (Bauman 2000 and 2001) in contrast to the previous society based on collective norms. Focus in an individualized society characterized by distance between people is on the individual person and its needs. ICT can be considered as an ideal tool for supporting this kind of society because of its flexibility and independence of time and space. E-democracy tries to combine traditional democratic values and norms according to the meaning of "demos"; with a more individualized values symbolized by "e".

It can be argued that "e" makes the interaction between e.g. political institutions and citizens more superficial compared with face-to-face interaction; while "e" can also be looked upon a tool for stimulating more informal and spontaneous interaction and thereby make the barrier for interaction smaller (Olsen et al. 2004). The question is what kind of interaction is desirable in a local democratic perspective; -perhaps it is desirable with more interactions even if it is informal as Hoff (2004) hints in his evaluating of an e-democracy project in the municipality of Odder in Denmark.

Participation

A central question in relation to citizen participation is at what level should citizen participation be understood? Is citizen participation a phenomenon at individual level only, or is it possibly to argue that citizen participation at meso level through voluntary (interest) organisations also has a potential to enhance local democracy? An assumption that point out that political decision making processes at local level can be democratized through more participation of voluntary (interest) organisations can be fruitful; but is also problematic.

Besides it will be discussed to what degree both active and passive forms of participation are relevant when it comes to what a democratic process implies.

Planning and decision making processes at local level

Classification of planning and decision making processes at local level will be done along two dimensions: issue and frame. Issue refers to cases and fields that are considered under municipal planning and decision making with regard to the implement aspect. In this way issue delimit the process against other levels of governance. Frame refers to the framework of the process – is it formal or informal, and what are the expectations to the process?
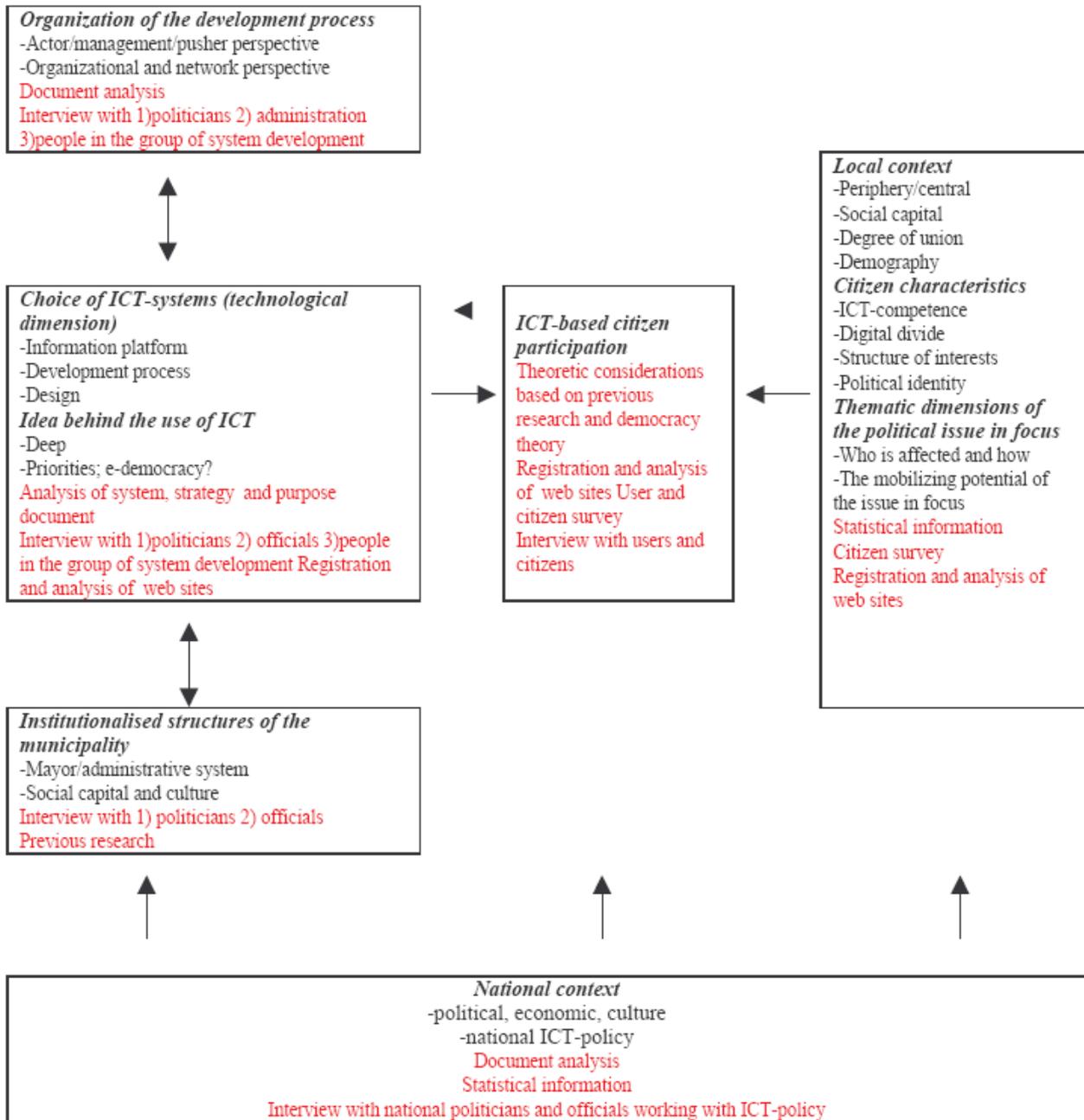
Figure 2-1. Analytic outline

2.3 Theoretical explanation models

The purpose of the project is to contribute to more explicit knowledge about the relationship between local democracy, ICT, and public planning and decision making processes through comparative research. The superior focus is on the role of ICT when it comes to promote local democratic elements in public planning and decision making processes. This implies a combination in approaches and theoretical perspectives. Besides, the project will stress empirical based discussion in relation to the variables of explanation at different levels.

Figure 2-1 illustrates the analytic framework of the project, and shows how empirical variable can be highlighted through more theoretical explanation models and what kinds of research design will be used in relation to the variables.

ICT-based citizen participation. This is the central dependent variable and will show to what degree participation of citizens and/or voluntary organizations (according to the discussion of "participation") in public planning and decision making processes is stimulated by and based on ICT. The degree will of course depend on factors at individual, organizational/local and national level.

2.4 Research method. Context and data.

The points of references in the project are two cases which will be analysed in a comparative light and in relation to their national contexts. The selection of the two cases is based on knowledge about the general level of municipal development with regard to electronic based democracy attached to planning and decision making processes – one municipality in Norway and one in Denmark. In relation to the general level these two municipalities are pioneers, and that is one of reasons way the project will follow up the e-democracy work of the municipalities the next couple of years.

The Nordic dimension of the project is relevant because Norway, Denmark and Sweden are very alike when it comes to general characterizations of the society: policy, culture, structure, mentality, level of education and competence etc. On the other size it will be of interest to study whether and what differences affect the use of ICT as a democratic instrument in relation to planning and decision making at local level. A methodical drawback of the project is that it will not be possible to make generalizations about the (causal) relations between national and local level because it is based on only two cases.

On the other size; the findings will perhaps be strong enough to indicate to what degree the national level and differences at this level make a difference. -The project is based on in-depth studies along many dimensions and data will be collected by more than one type of method which strengthen the general credibility and reliability of the project.

I have already indicated what kinds of data those are relevant and how the data will be collected in previous paragraphs. Figure 2-1 shows and sums up (red font) the methods of data collection the project will use and which data sources that are considered as relevant in relation to each variable/dimension. Triangulation is a key word both concerning data and collection methods which is considered to support in-depth case studies – hopefully triangulation will support and make it possible to see the general in the specific as indicated before.

Experiences from previous research indicate that it can be hard to carry out a net user survey because of difficulties with getting in touch with the net users. Solving this problem implies ingenuity and perhaps a good relationship to webmasters in each municipality…

The purpose of the project is to get a close relationship to each case and thereby have the opportunity to keep me up to date on developments and changes. In relation to this I have to do reflections on my role as researcher – can the municipalities get use of my competence in the field or should I be an outsider researcher who does not participate or does not get involve in the projects of the municipalities? The question is of relevance because the two cases are pioneers in the field of electronic democracy and their concepts are still under constructions.

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The Department of Political Science was established in 1957 and is one of the five departments at the Faculty of Social Sciences. Originally established as a research institute, it is today a department concerning with research, teaching and mediation within political science.

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Virtual eLearning – eEmployment Project

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1. Introduction: eLearning in a long Tradition

For many e-terms there are several definitions, because different sectors have a different view on a field. Also for the term eLearning is no unique definition. In this paper two types of definitions are used [1].

Definition 1: "If someone is learning in a way that uses information and communications technologies (ICTs), they are using e-learning."

Definition 2: "eLearning is also called CBT. eLearning is a general term that relates to all training that is delivered with the assistance of a computer. Delivery of eLearning can be via CD, the Internet, or shared files on a network. Generally, CBT and eLearning are synonymous, but CBT is the older term, dating from the 1980s. The term eLearning evolved from CBT along with the maturation of the Internet, CDs, and DVDs. E-learning is also includes Internet-based Learning, Web-based Learning, and Online Learning."

Life long learning is an attitude which gets very important. The use of information and communication technologies changed learning and now eLearning makes learning easier. The learner does not depend on time and place. In the following paragraph the term learning is defined [2].

Learning is the process of acquiring knowledge, skills, attitudes, or values, through study, experience, or teaching. The learning result causes a change of learner's behavior that is persistent, measurable, and specified or allows an individual to formulate a new mental construct or revise a prior mental construct.

So it is very important also for eLearning to support this process. For a successful learning process many influencing factors are play-

ing an important role. Some of these factors depend on the learner for example motivation. Other factors depend on the other partner who prepares and distributes the learning material. For providing the learning material and information, a Virtual Learning Environment (VLE) is helpful.

2. Virtual Learning Environment

Virtual Learning Environment is a popular word. After the definitions of learning and eLearning the term Virtual Learning Environment (VLE) is explained.

A virtual learning environment [3] is essentially a web site providing several basic functions to support the learning process. Normally, a set of tools and navigation aids are provided, with the aim of placing any online educational materials into a clear, organized structure.

Sometimes the terms VLE and MLE are used synonymously, but this is not correct because a Managed Learning Environment (MLE) is a software system which facilitates teachers in the management of online educational courses for their students.

2.1. Requirements for a VLE

Virtual Learning Environments may be used to support a range of learning contexts, ranging from conventional, classroom delivery to off-line, distance learning and on-line learning. There are general requirements of a VLE independent from the learning context but some of the general requirements depend on the kind of learning context. When the VLE is used to support off-line, distance learning then the VLE must support the distribution of course materials to learners' systems.

One of the main function of a VLE is to map the curriculum to elements that can be assessed and recorded. Another important component of such a VLE is to support online learning and provide an access to learning re-

sources, assessment and guidance. In a VLE it is also necessary to record basic information. Basic informations are data from the learner, registration details, course details, tests and results and whether the student has passed or failed. The user of a VLE should have the chance to link to other systems. VLE are not only a platform to get learning material but they should support general communication as well. So as a minimum set VLEs should contain emails, discussion groups and the learner should also have the chance to get help from an online tutor.

Basic Requirements of a VLE [4]

Course Management: VLE should support the preparation of courses. Course Management must allow the tutors and / or administrator to manage and customize their course web site. Then course materials and assessments to the courses should be added to the individual courses on the website. Then each course should provide the students shared space for communication like bulletin boards. Further it must be possible to add or remove students from courses and to modify student enrolment options.

Course Outline: The system should provide a structured means for tutors to create course outlines. Then the course outline should provide hyperlinks to the course pages. The course outline supports every user of the system to have a better overview of the course structure and dates for assignments, lectures, video conferences etc.

Assessment: It should be possible to mark assessments automatically or submit them electronically to the tutor for marking. A VLE should support different kind of tests / revision (multiple choice, fill in the blank, ordering, matching, and essays). Ideally it should be possible to create a database of questions for re-use and create summaries of students' answers.

Personal Information Management Tools: Students should be able to access their own course details and performance information.

Communication: The system must provide mechanisms to allow tutors and / or students to interact in synchronous and asynchronous modes. There exist a broad range of different mechanisms like email, discussion board, video conferencing, white-board and so on.

Database Requirements: The database must be capable of supporting large numbers of user queries while maintaining a rapid response. Tutors and Administrators must be able to set different levels of access for different users. But therefore they need not a detailed knowledge of the structure of the database.

System Management: System administrators should be able to monitor, customize and control the VLE via a Web browser. The system management should support basic functions like adding / removing users from the system, creating statistics reports of courses, sending broadcast messages to users about system maintenance, and so on.

Security & Privacy: VLE have to store data safely and privacy has to be guaranteed. In a VLE data relating to staff and students must be stored safely and securely.

2.1.2. Further thoughts on concerning VLE

The general requirements of a VLE have already been discussed. In the following paragraphs further aspects of a VLE are discussed which should be attended by a VLE to support the learner [3], [5]:

- Establishing a powerful information space: The user should find information for answering simple questions after he is looking for. In addition in a VLE there are authors and in some case more than one author are responsible for the content. Therefore such a system should support multi-authoring. This means nothing

should be published if not every author has agreed and has finalized all work on a specific content. Content grows over the time and therefore a good structure is also necessary for a successful learning process.

- Interactions occur in the VLE: What is specific to virtual environments compared to any information space? A VLE is populated. The users are inside the information space and see a representation of themselves and/or others in the space. As soon as students see who else is interested in which information, the space becomes inherently social.

- Variety in the presentation of content: The representation of the learning environment ranges from text-based interfaces to the most complex 3D graphical output.

- Learner must be also an actor: In Web-based environments, learning activities range from multiple-choice questionnaires to problem solving. For example writing activities (producing syntheses, study reports, newspapers,...) are very popular in schools. In a VLE are not restricted to consuming Web information, they become information producers, and they enter in the game. There is quite a difference between writing a critique of a novel which will be read only by the teacher or which can be read by potentially anybody.

- In a virtual learning environment the learner should not only be active. The learner should also be an actor, i.e. members and contributors of the social and information space.

- VLE are not restricted to distance education: Web-based education is often associated to distance education, while - in the practice - it is also widely used to support learning on the site of conventional institutions.

- VLE integrate different technologies: Integration is necessary for the pedagogical

approach: A physical learning environment generally integrates courses, resources (libraries), formal communication (boards) and informal communication (cafeteria). A virtual learning environment integrates a variety of tools supporting multiple functions: information, communication, collaboration, learning and management.

- VLE offers diversity: VLEs can be used in a broad scope. VLE fulfill administrative functions like managing courses, collecting assessment notes to count credits. These environments should offer functions which can be found on a real campus: registration, assistance, leisure & fun.

3. Project eEmployment

The Leonardo da Vinci Project "New Forms of Learning & Basic Skills for Advanced, inclusive Lifelong eVET in Internet Generated Occupations" [6] (Project RO/03/B/P/-PP175006), abbreviated by "eEmployment", comprises a group of correlated and convergent products.

These products are general for students and particular focusing on two special groups: disabled people with mobility impairments and of unemployed people, including young people who dropped out of school. Starting basis of this project was the fact that the Internet offer new possibilities and that it can be used to perform profitable activities. The project involves eight partners [6].

3.1. General Goal of the Project

The main goal of eEmployment is to produce VET products (Vocational Education and Training) and eVET Products (eLearning-based VET Products). These products include courses, curricula, guidance, and procedures to create skills by education and training in the fields, which are the possible most suggestive occupations generated by the Internet:

- Internet Online Services

- eWork formed by doing and managing business via the Internet, including eBusiness.

These products for education and training are focused on the target people of this project, who are as mentioned above unemployed people, young people out of school and disabled people with mobility impairments.

So the main aim of the project eEmployment is to create a VLE (Virtual Learning Environment), which can be practically applied. This VLE should be used both for VET based on Incubation (for training in Internet Online Services) and for eVET based on eIncubation (for training in management of business and eBusiness). This goal is aimed to be reached in two ways:

Implementing an advanced eLearning environment (VLE) and procedures in the fields of eVET in Internet generated productive occupations. This eLearning environment is based on Internet learning technologies and current standards. This VLE uses both Incubation and eIncubation to support the learner as best as possible to acquire the necessary skills and to allow him a quick beginning in this field of work.

Generating skills and using these skills within the VLE mentioned above for generating the VET and eVET products in Internet generated productive occupations: Internet Online Services, Internet based Management and Achievement of Business including eBusiness.

3.2. Leading towards Internet generated Occupations

The project eEmployment tries to reduce the effects of the Digital Divide, as it provides products supporting possible occupations in the Internet field. These jobs belong mainly to eWork and teleworking activities and can be classified in the following categories:

- eBusiness / eCommerce / mobile eCommerce

- Internet On-Line Services
- eContent, eLearning, ePublishing, and working for eBooks
- Web programming, building Internet applications, and software for web applications
- Wireless Internet applications and software programs for wireless applications

Each of these categories comprises related and supporting activities to its main field of course. Afterwards for each category several exemplary activities and jobs are listed, where the products of eEmployment bring important contributions for coaching the target people.

3.3. Products elaborated within the Project

The project eEmployment offers products, which allow a practically oriented quick and efficient learning of the Internet generated occupations. So the project can help to start advanced careers in the Internet field. The products will be available in five languages: English, German, Italian, Dutch and Romanian.

So the following products are elaborated within eEmployment:

- Virtual Learning Environment (VLE), created by the partners web sites
- The practical eIncubator: The learner can remotely manage and use a complex and multifunctional eMall, in which he can create, use and really exploit his own eStores.
- - The functional models of the Incubators for training in eBusiness and eCommerce
- - The functional models of the Incubators for training in online internet services / Internet Service Providers
- - The Compendium and Directory of the Internet-Generated Productive Occupations (Product G)
- - The Guidelines on approaching and using the Virtual Learning Environment (Product D)
- - The Handbook for the Internet-Generated Productive Occupations for the Disabled (with mobility impairments) (Product I)
- The Training Handbook in the Internet-Generated Productive Occupations: Online Services (Product E)
- The training Handbook in the Internet-Generated Productive Occupations: Internet-based management of Business including eBusiness (Product F)
- The Handbook of eIncubation (Product H).

3.4. Didactical aspects

Didactical aspects include the survey and the adoption of the project to the users' needs, the steps performed for dissemination and a description of the general structure and layout of the elaborated sessions.

As the project focuses on two specific target groups, namely disabled people with mobility impairments and (young) unemployed people, one of the very first actions was to identify the user needs of these target groups. Besides the requirements the structure of the lesson is very important. According to the specification sheets (SPS), all lessons have the very same basic structure. Before starting the lesson's content, the following points are presented:

"After learning this lesson you will be more rich with the following knowledge": This gives a quick overview about what the learner will know after completing the lesson. This part should not be too long, only up to five rows.

"Content of the Lesson": The table of contents for the current lesson.

"Learning Objectives": This should be a short list of points, which the learner should have accomplished the ability to after having learned the lesson.

After these three introductive elements, the main content of the lesson is presented. Subsequent to the content, which should not be

above 12 to 15 pages per lesson because of aspects of learning capacity, the annex is shown. The annex consists of several points: First, the "Key Point Summary" lists the lesson's main conclusions and recommendations. The "Study Guide" contains a list of important questions, which can be used for verifying the new knowledge. The literature directly used for elaborating the lesson is listed in the "Bibliography", whereas the section "Supplementary important Bibliography/References" lists material for further reading. A third section called "Supplementary Indications about the Content of the Lesson" can be used to list further links, which can be useful for intensifying the knowledge. This section is followed by the second part of the "Study Guide" – namely the answers to the questions above. The lesson is finalized by the "Words to the learner", which should be used to motivate and encourage the learner.

3.5.   Created Contents by Us

We have developed contents for three work pages, namely WP 3 "The Training Handbook of Internet Generated Productive Occupations: Internet Based Management and Achievement of Business including eBusiness", WP 1 "The Compendium of the Internet Generated Productive Occupations", and WP 6 "The Guidance / Guideline in approaching VLE, eVET for Internet generated productive professions".

The main Work Package 3 "The Training Handbook of Internet Generated Productive Occupations: Internet Based Management and Achievement of Business including eBusiness"

The first deliverable consolidated identification, assessment and completion of the detailed user needs. In the next deliverable the learning material contains different aspects from the field eBusiness. The deliverable is structured in five lessons. The Romanian

partner has elaborated the lessons 2 and 5. Lesson 1 teaches the learner basic knowledge about eBusiness / eCommerce and other important terms. Furthermore in this lesson the advantages and the impact of eBusiness are explained. Lesson 3 is about "Remote / Virtual Office and Teleworking for eCommerce and eBusiness". Lesson 4 covers the basic use of the internet. The learner will get to know what are eShops, eMalls and eAuctions and how they do work. In addition he will realize electronic Marketplaces as support for electronic cooperation.

In the next deliverable the focus of this learning material is on eShops (eStores), web sites, advertising and eMarketing. This deliverable contains four lessons; our partner has elaborated the lessons 2 and 3. Lesson 1 was divided into three sub-lessons. First, the learner will get to know different Internet offers and principles. Furthermore he will learn the importance of a market analysis, why to create a web site and aspects which have to be considered when creating a web site. Second, he will learn how to choose and to present the right content for a web site as well as to update the content. Third, he will be taught about upgrading the web site, planning a web site, scripting languages, and standards for B2C eCommerce platforms. Lesson 4 is about eShops containing the different actors, general criteria and basic components in eBusiness. A checklist supports the learner to identify a successful eShop. Furthermore he will learn to read and to interpret server statistics.

The fourth deliverable has its focus on hosting, business platforms, and management themes. It contains four lessons; our Romanian partner was assigned the lessons 1 and 4. Lesson 2 is about what aspects have to be considered when choosing an eShop for hosting by your own. Furthermore this lesson contains the steps for developing a small eShop. After that the term "building blocks" and why

they are needed and helpful are presented. In addition this lesson contains a small exemplary element of an eShop, namely a shopping cart implemented with ASP.NET. Lesson 3 is about low cost platforms for eBusiness and eCommerce. The learner will get to know how to create a platform for doing eBusiness without high costs and which applications he needs for this purpose.

The learning material from the last big deliverable has the focus on security, payment, legislation, and Code of Conduct and is divided into five lessons. Our partner has elaborated the lessons 1, 3, and 4. Lesson 2 is about security and trust in eBusiness and eCommerce. It contains all security criteria for the protection of a network, secure access to data, the sense of the authentication, certifying for contracts and/or digital signatures, potential aggressors such as DoS, spoofing, phishing, viruses, ..., possible counter measures, encryption procedures, security protocols, and mobile security standards. Lesson 5 teaches the learner some basic information about electronic payment. He will know what electronic payment means and how it works. He will know how to get credits over the Internet. The learner will get experience about an electronic card and its function in electronic payment, and he will see the electronic payment possibilities over the Internet, the required security measures and some information about the mobile payment solutions.

The last deliverable is a document with best practices (in the form of examples) and documentary resources.

Work Package 1 "The Compendium of the Internet Generated Productive Occupations"

In this work package, we only had a small part to elaborate. The leader of this project is Partner P1. This lesson is about the design and production of multimedia products. This includes how to introduce translation of the text in films with the view of the delivery via the Internet. The focus of this aspect lies on subtitling.

Work Package 6 "The Guidance / Guideline in approaching VLE, eVET for Internet generated productive professions"

In this work package two short tutorials were written and an example for "the good practice" in the fields of VLE.

The first tutorial is a short introduction how to modify images with Adobe Photoshop. This includes doing simple activities on images like changing the image size, changing the Brightness / Contrast, Hue / Saturation and the resolution. Besides the user can save an image with different file types. The second tutorial contains basic knowledge about Microsoft PowerPoint and how to create a simple slide show. The learner will get tips about animations and the design of effective presentations, insert of graphics, tables and diagrams.

4. Conclusions and Outlook

In this paper we tried to clarify the terms and definitions of eLearning and Virtual Learning Environments. We presented a case study of a VLE, namely the eEmployment project. As the project is still on-going, there are several future activities for us to do within the eEmployment project.

1. Revision and improvement of the training materials by including remarks by other partners.
2. Creation of the final version of the learning materials: This contains checking all intellectual property and copyrights aspects.
3. Translation of all contents into German: As leader of language for German, we have to translate the products (Handbooks D, E, F, G, H, I) of the project into German.
4. Creation of a glossary for the handbook F
5. Collaboration with other partners within the implementation of the eLaboratory in eCommerce

6. Publishing an excerpt of the project on our web site.

7. Tests and evaluation of the products.

8. Overwork the document with best practice and documentary resources.

9. Dissemination of the results and continuous dissemination.

10. Writing reports and the final report for the Leonardo da Vinci agency.

Regarding the virtual learning environment in the eEmployment project, especially the above points 5 and 7 will be interesting.

We are looking forward to the user studies, which will be very useful for the further development of this VLE. They will show if this system can support learners and if they accept the system for the goals of this project. In addition, they could be used to compare learning via a VLE to other methods.

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The research issues of the Institute include the following topics: Information Systems in Public Administration (electronic Government); Distributed Knowledge in e-Government; Analysis & design of information systems; Computer Supported Cooperative Work (CSCW); Computer-Human Interaction (CHI). The institute is also undertakes the research activities, including: Wissensportal "E-Government Projekte"; Leonardo da Vinci Project – eEmployment; Forum eGov.at; IFIP Working Group 8.5 and other.

For more information see: *http://www.iwv.jku.at/*

Institute of Pervasive Computing, Johannes Kepler University, Linz, Austria

The research of the Institute is focused on the issues of the following areas : Software for mobile, ubiquitous and embedded system architectures; Coordination and interaction; Development of distributed and embedded system software; Wireless communication systems and communication software; Quality of Service Management and performance analysis and Distributed interactive (multiuser) simulation. Besides, the application oriented research includes the following topics: Context Computing; Distributed multi-user environments; Handheld, PDA and Wearable Computing solutions; Multisensor and immersive environments; Global networks and WWW opportunities; Wireless and ad-hoc networks; Distributed software systems.

For more information see: *http://www.soft.uni-linz.ac.at/*

From Drift to Control:
Managing Information Systems in the Public Sector
Kristian Hjort-Madsen

Being a PhD-student at IT University of Copenhagen, Kristian Hjort-Madsen develops his research with the focus on the use of enterprise architectures in government institutions. Hjort-Madsen is especially interested in the way that national (and/or sector specific) enterprise architecture programs are used to govern the important interoperability issues that arise when business processes and data must be exchanged between the different layers of government (top-down or bottom-up).

1. Introduction

In response to the growing business and civilian demands and expectations for improved service and efficiency, governments around the world are transforming their traditional service-delivery channels and internal operations by an intensive use of IT and communication technology. The political expectations in regards to digital government are huge; IT is seen as the solution to the demographic problems that many western countries are facing with more elderly people and a decreasing labour force as well as the growing demand for better government services to citizens within restricted budges. The vision is clear: Digital government must be the driving force in modernizing work practices and creating better services in the public sector to the benefit of companies and citizens. Reality is however that more than 50 percent of all IT-projects in Denmark do not match user and performance expectations and projects are often late (DanmarksStatistik, 2003). The challenge in government institutions today is that many digital government initiatives require information exchange in networks of various governmental organizations. Most public institutions today manage technology in what is popularly described as stove pipes, with individual institutions implementing their own channels, web page applications and supporting infrastructures. What is needed is a radical shift from the traditional scenario, that we see today, in which citizens and companies have to run from pillar to post and themselves coordinate their problem solving, to a new scenario in which citizens and companies are placed at the centre of the public sectors attention. In other words, we need to align the public IT-infrastructure to enable authorities and other relevant players to coordinate both the user interface and the underlying IT-systems and processes in the public sector to create a more service oriented and efficient public sector.

In Denmark, the Ministry of Science, Technology and Innovation has recently introduced enterprise architecture (EA) as the approach that can overcome these challenges and create a flexible and efficient government. In the literature on e-government, the focus has often been on the interaction between governmental institutions and citizens (the front-office), while the underlying infrastructure (the back-office) is neglected. The strength of EA is that it embraces both the front and back-office focus along with a governance model that guides the use of IT from

a business perspective. No matter how it is perceived, there is a clear gap in the current governance of IT in public sector stove pipes and we must find an integrated approach be it EA or another approach that goes beyond the pure front-office focus and incorporates all aspects of the public sector (including the back-office) when implementing IT-systems.

This paper outlines a research project in progress that seeks to tests the assumptions behind EA though empirical field studies in the public sector in Denmark. This is done though four or five empirical case studies at different levels of the public sector in Denmark.

The EA approach is observed and analysed. EA is by nature a top-down approach and the research program will illustrate how this approach clashes with the Danish tradition for decentralized autonomy and control in the public sector with strong and independent ministries, regions and municipalities. There are some clear benefits from taking a top-down approach to the management of IT-infrastructures, but the findings in the research project will suggest a third way where the bottom-up and a top-down approach are amalgamated.

2. Materials and Methods

To understand the dynamics of public IT-infrastructure development, the research project will conduct four or five empirical case studies at the national, regional and local level of government.

The theoretical foundation for the case studies will be based on literature from the field of global information systems and IT infrastructures as well as institutional theory from the political sciences.

As an industrial PhD-student working inside the national EA program in the Ministry of Science, Technology and Innovation, the study at the national level will be based on ac-

tion research where different theoretical approaches to the management of IT-infrastructures will be tested. The regional investigations are carried out at Rigshospitalet where a new IT-strategy is just being implemented with EA as the guiding approach. At the local level of government one case study is planned on the island of Bornholm and it is expected that the next case study will be carried out in one of the larger municipalities in southern Denmark.

3. Results: The Pros and Cons of Control

The top-down approach that the Ministry of Science, Technology and Innovation has proposed with the national EA program will probably prove beneficial with regards to the management of governmental interoperability. We must expect obvious benefits when it comes to sharing data and processes across different public institutions and the EA work will create a larger degree of visibility in the public sector. The studies will illustrate how information systems architectures in general are poorly understood and managed in public institutions. EA has been a lost realm in e-government practice and research, lost between organization level approaches to strategic IS planning and IT management and technology-level approaches to enterprise computing.

However, a range of adverse effects of the EA approach must be expected. The strict top-down approach will most likely have a negative effect on the bottom-up creativity that is base on interpretation, in the sense that they are aimed at producing an understanding of the context. It is namely this approach that has made Denmark into one of the most successful countries when it comes to using IT in the public administration.

The Danish tradition for decentralized control has created an entrepreneur-like IT-creativity in many public institutions that is

very unique. The case studies will illustrate how a strict top-down approach to EA can harm this positive spirit and create more frustration and lack of results than benefits.

4. Discussion: The Third Way for Managing Information Systems in Public Sector

There are some clear benefits from championing EA as a top-down approach to the management of IT-infrastructures in the public sector. The current use of IT in public institutions is very often not meeting user requirements and the IT-infrastructure is rarely aligned with the institutions business processes and overall goals. Very few public institutions understand their own IT-infrastructure because they have placed the responsibility in the hands of private vendors. If we want to create a public administration that places citizens and companies at the centre of attention we need active IT-infrastructure strategies that support the vision about one entrance to the public sector for citizens and businesses. Interoperability between the different autonomous agencies in Denmark is key to realizing this vision and the introduction of EA is moving us from drift to control.

On the other hand we need to be sensitive to the bottom-up ideas and needs expressed by the individual agencies. If the EA approach takes away the local incentive to be creative and flexible when it comes to developing an agile and efficient IT-infrastructures the approach has failed. Denmark has a tradition for decentralization in the public sector and we must develop a strategy that is sensitive to this heritage. The results of the case studies in the research project also document the benefits of cases that are interpretive; the case studies that tries to take the organizational and human context of the environment into account, as well as the processes whereby the information systems influences and is influenced by the context. That said, this does however not mean that the empirical findings support a pure bottom-up approach to the management of information systems as the solution to the IT-challenges that the public sector is facing.

This research project proposes a third way. The findings indicate that we must find a synthesis between the two perspectives if we want our vision about one entrance to the public sector for citizens and businesses. In order to create an IT-infrastructure that can support the vision we need to move more towards a control approach, where EA facilitates the necessary interoperability while being sensitive to the local context and the needs here.

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At the ITU both the technical, the organizational and the business-oriented aspects of IT are in focus. The department contributes to a deeper insight in the processes of development and use of information technology. Typical results are new and appropriate theories and concepts, sketches of useful technologies, and also improved methods, techniques and tools for supporting the analysis, design and implementation of IT-based systems. Much of the research work is empirical and experimental and builds on research from science, social science and the humanities.

For more information see: *http://www.itu.dk*

A Reference Architecture
for Process Orchestrators in E-Government
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1. Introduction
1.1 Governmental Services
One of the main tasks of governments is providing services to its clients, citizens and businesses. Figure 1 shows on an abstract level the general organization of governments using three roles: civil society, formal politics and public administration, and their main relationships (Grönlund 2002). Many lower-level roles, and even more relationships can be identified, but the focus of this research is on the governmental service-delivery process, as is shown in figure. Services are typically provided by the public administration, and their consumers, both citizens and businesses are part of the civil society.
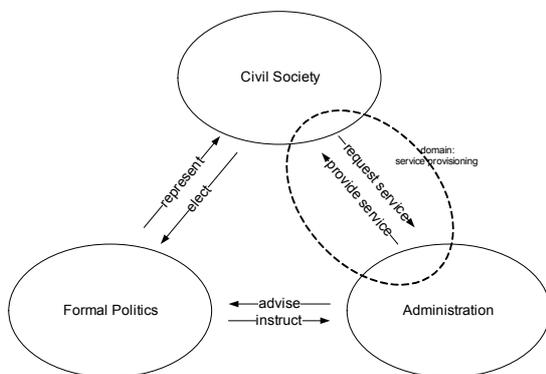

Figure 1. Domain of Service Provisioning (adapted from (Grönlund 2002))

Governmental services are very heterogeneous by nature. Services range from relatively basic services such as collecting the garbage on the streets, to more abstract services, such as providing safety. These abstract services often become quite concrete on an operational level, where the many aspects of safety are ensured by means of a licensing-system. An example is the safety of buildings that is ensured by means of a building-license. The citizen wanting to build a new house has to apply for a building-license, which starts the service-delivery process.

The service-delivery-processes consist of the activities that need to be performed in order to deliver the services. The process of providing a building-license, for example, is initiated by the client filing a request for a license. In the subsequent process-steps, the client has to fill in several application forms, the public servant has to verify several important characteristics, a building inspector may visit the proposed building site, the applicant may be requested to alter some details, etc.

Governments consist of different levels, e.g. local, regional, and national governments and governmental responsibilities are divided among these levels. Within the public administrations at these different levels, many differ-

ent more or less autonomous agencies exist, each responsible for a certain set of tasks. Due to this fragmented nature of governments (Wimmer 2002), the activities that make up a single, atomic governmental service, such as an building license, are often performed by different governmental agencies (Castellano, Pastore, Arcieri, & Summo 2004, Contenti, Termini, Mecella, & Baldoni 2003, Gort-maker & Janssen 2004), making many ser-vice-delivery processes cross-agency ser-vice-delivery processes. These cross-agency ser-vice-delivery processes will be the main focus of this research.

1.2 Distinguishing Characteristics of E-Government Services

Although governmental service-delivery processes at first sight largely resemble com-mercial service-delivery processes, there are several important distinguishing characteris-tics to governmental service-delivery proc-esses.

There is a lack of choice for the customer. Whenever he or she is not satisfied with the services provided by a commercial provider, he or she can simply choose another service provider. In the case of governmental servi-ces, there is almost always only one govern-ment that provides the service that is needed. Together with the fact that governmental ser-vice-delivery processes involve the use of public resources, making that the need to ac-count for their service-delivery processes is much more manifest than in the private sec-tor.

The notion of 'customer' in public service-delivery processes is less obvious than in pri-vate service-delivery processes. In building-licensing process, for example, the licensee may be considered the customer of the ser-vice, but the public community may be de-fined as the 'client' of the government, as the real purpose of the licensing process is guard-

ing their interests regarding environment, safety, etc. (Ongaro 2004).

Changing existing service-delivery processes is more difficult than in the private sector, as processes are highly determined by law. Fur-thermore, the relatively large degree of frag-mentation and autonomy of governmental agencies makes that optimizing and automat-ing service-delivery processes involve many different actors, causing a decision-making process that is characterized by participation instead of hierarchy.

1.3 Developments in Governmental Ser-vice-Delivery Processes

Governments from all over the world are looking for ways to improve their service de-livery processes. This is partly motivated by the aim to reduce the administrative burdens, or "red tape", for citizens and businesses (Dutch Government 2003, CabinetOffice 2000, Ongaro 2004, Dutch Government 2004), but is also a response to the demand of its clients, who expect the public sector to in-crease their attention on customer service just as businesses have done as a result of the the rise of Internet technologies (McIvor, Mc-Hugh, & Cadden 2002, Donnelly, Wisniew-ski, Dalrymple, & Curry 1995).

The automation of cross-agency service-delivery processes is crucial to improving governmental service-delivery and the reduc-tion of administrative burdens. This is not on-ly the case for service-delivery processes that offer existing 'atomic' cross-agency govern-mental services, but also for service-delivery processes offering 'compound' services, i.e. a combination of several related atomic ser-vices, for example a combination of a liquor license, a license to play loud music and a li-cense from the fire department to ensure the café is safe, and a license to cut down any trees that might stand in the way. Applying for two or more services at the same time and

place, using the same application form, greatly reduces the time and effort that cus-tommers have to spend in interacting with the government. A third step in complexity of cross-agency service-delivery processes is reached when also services from private part-ners are offered together with governmental services.

Electronic government as a means to im-prove governmental service-delivery has largely failed in addressing the problem of governmental fragmentation in an adequate manner. Many governmental websites were developed on an agency-to-agency basis with little tendency to develop a centralized web-site (Gant & Gant 2002), and in this explosion of websites, the hyperlink often became the substitute for properly integrated systems (Bannister & Walsh 2002). Gouscos, Laskaridis, Lioulias, Mentzas, and Georgiadis (2002) state that the 'mere collection of links to e-government sites is a very superficial im-plementation of the one-stop concept'.

To offer seamlessly integrated services, the service-delivery processes of the different sub-services should be tied together. As the number of parties involved in the overall ser-vice-delivery process increases, using tradi-tional, one-to-one integration-methods be-comes more difficult, and the need for an or-chestrator arises.

A promising solution to the problem of or-chestrating cross-agency service-delivery processes is web service orchestration.

2. Web Services Orchestration

Web service orchestration is based upon the notion of a service-oriented architecture (SOA). Due to its loosely-coupled nature these technologies seem very suitable for or-chestrating service-delivery processes that run across relatively autonomous agencies.

In a SOA, application functionality is not provided by one large monolithic application, but is provided by services that are offered by different independent providers. These ser-vices can be invoked by service-requesters who found the service in a service-directory. The services-concept is not only applicable on software-architectures, but also on business services (Steen, Strating, Lankhorst, Doest, & Iacob 2004). A SOA makes it possible to quickly assemble new compound services out of existing sub-services.

Web Services is an important technology for realizing a SOA. Web Services enables the provisioning of functionality, both on applica-tion and business level, by means of a stan-dardized interface in a way that they are easily invoked via Internet-protocols. Web services are modular, accessible, well-described, im-plementation independent, and interoperable (Fremantle, Weerawarana, & Khalaf 2002). Using web services, existing legacy applica-tions can be reused by encapsulating them be-hind a web service interface.

Web service orchestration builds upon web service technology, and the concept of a SOA to orchestrate different web services into an executable business process. Wohed, Aalst, Dumas, and Hofstede 2003 define an execu-table business process as "...[specifying] the execution order between a number of con-stituent activities, the partners involved, the messages exchanged between these partners, and the fault and exception handling mecha-nisms." In web service orchestration, these ac-tivities are typically performed by web ser-vices that are invoked from a process by means of their standardized web service inter-face.

The standard language for web service or-chestration is BPEL4WS, Business Process Execution Language for Web Services (An-drews et al. 2003), or BPEL for short. BPEL is developed by Microsoft, IBM, and BEA, and unifies two older languages from Micro-soft and IBM: XLANG and WSFL. A process

that is specified in BPEL consists of two types of activities: basic activities, such as receive, reply, wait, and structured activities as switch, while, and sequence. The structured activities determine the structure, or the sequencing of the process, and the basic activities determine what happens in the process, for example the invocation of a WS, receiving a message from a Web service, etc.

Figure 2 shows a graphical representation of a BPEL-process. It is part of a prototype that was made for a liquor-licensing process. The process is initiated after an applicant fills in an on-line application form. First, a web service to check if the form is correctly filled in is invoked. When not all fields are correctly filled in, an error-message is prompted back to the applicant. When the application is complete, the simultaneous sub processes are started: the application is published in the municipal newspaper, and a web service at the police in invoked to get information about the criminal record of the applicant.

3. Process Orchestrations

The previous section clearly showed the potential of SOA and web service orchestration as a technical solution to the problem of orchestrating cross-agency service-delivery processes. When trying to implement these technologies, it will however soon become clear that they are only the technological part of the solution. As implementing technology often requires the alignment with the organizational infrastructure (Henderson & Venkatraman 1993), implementing web service orchestration also requires an orchestration role that is responsible for orchestrating the web services or sub-processes at the different agencies into the overall service-delivery process. This research will focus on this 'process orchestrator' role.

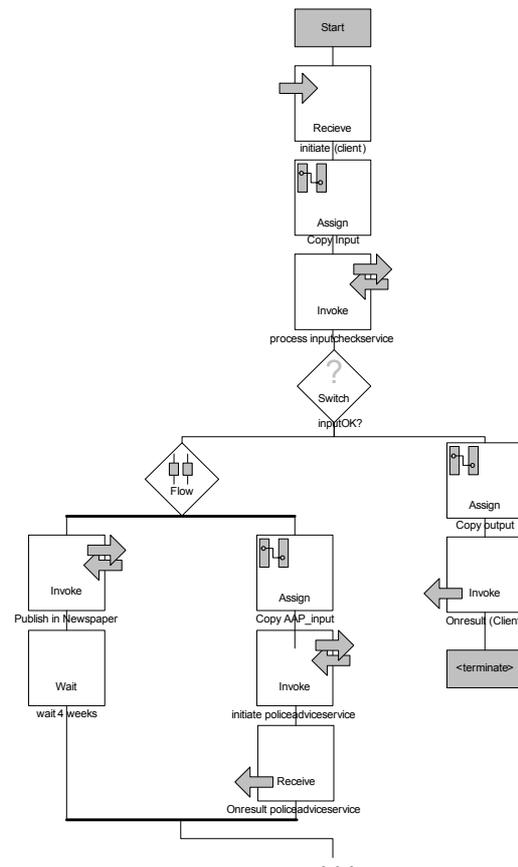Examples of tasks that a process orchestrator should perform are ensuring the correct

Figure 2. Part of an Orchestration Process

execution of the overall process, guarding the lead-times of the process, facilitating the sharing of information among the relevant agencies, tracking and providing status-information to the customer, etc.

Governmental decision-makers need to address these and other issues when designing process orchestrators to improve their cross-agency service-delivery processes. However, no guidelines for designing process orchestrators exist. As these issues should be addressed in an coherent and consistent way, this research aims to provide the governmental decision-makers with those guidelines by means of a reference architecture.

The goal of this research is therefore to support governmental decision-makers in designing process orchestrators by providing them with a reference architecture.

4. Research Questions

The first question concerns the requirements for a reference architecture for process orchestrators in e-government. This question needs to be answered first as the requirements are essential in the process of designing a reference architecture for process orchestrators. This question will be answered by studying

Research Question 1: What are the requirements for a reference architecture for process orchestrators in e-government?

An architecture can be defined on many different levels, e.g. software architecture, systems architecture, or organization architecture. A reference architecture can also consist of many different elements. This makes clear that designing an integral reference architecture is impossible, and as not all elements that could be parts of a reference architecture are relevant, design choices have to be made about which elements to include in a reference architecture for process orchestrators. The requirements for a reference architecture will be an important input for answering the second question.

Research Question 2: What are the important elements of a reference architecture for orchestrators in e-government?

The third research question covers the process of implementing the designed reference architecture for process orchestrators. Taking the designed reference architecture as an input, guidelines need to be developed on how to use this reference architecture. The guidelines should, for example, indicate how to deal with the trade-offs that arise when implementing the reference architecture.

Research Question 3: What are important principles and guidelines for implementing the reference architecture?

5. Research Approach

A global overview of the research approach is shown in figure 3. As a first step in this research, relevant literature is reviewed, and confronted with the findings from two explorative case studies. This yields the problem statement, the requirements for the reference architecture, and the reference architecture itself. This reference architecture is then used in one or more cases, leading to a new version and an evaluation of the reference architecture.
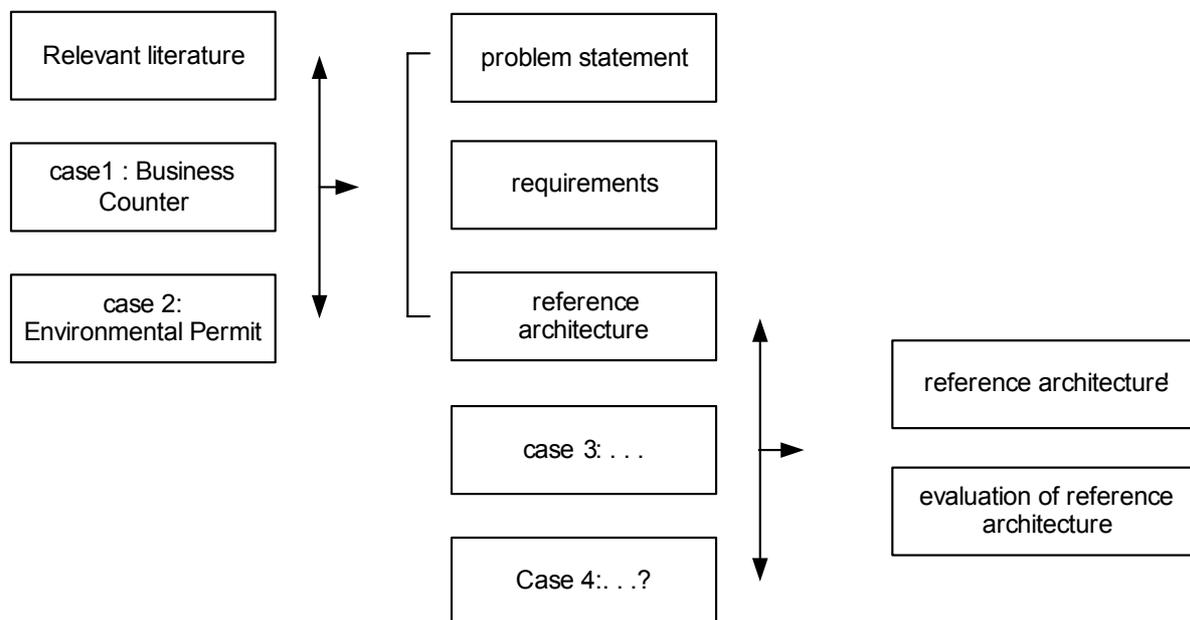
Figure 3. Research Framework

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Understanding e-Government Complexity;
A Stakeholder Based Approach
Leif Skiftenes Flak

Leif Skiftens Flak is a PhD student at the Department of Information Systems at the School of Management of the Adger University College. His current research areas include E-Business, E-Government and IT Outsorcing. As part of the iterative process of doing interpretive research and as training exercise in writing publishable papers, Flak has authored 10 journal, conference and workshop papers since November 2002.

1. Introduction

The Ph.D. study focuses on how to understand complexity in e-Government projects and the effects complexity has on the development and implementation of e-Government. The public sector is traditionally characterized as a particularly complex setting involving a variety of different stakeholders with multiple and often conflicting objectives. Due to the currently weak theoretical foundation of the e-Government field, stakeholder theory is used as a candidate theory for describing the ongoing government reforms. The thesis aims to improve the e-Government community's understanding of how stakeholder dynamics affects the development and implementation of e-Government and how stakeholder dynamics are affected by the new technology fuelled mode of government. The result of the doctorral work will be an adapted version of stakeholder theory, adjusted to accommodate the characteristics and values of the public sector and the implications of adding information technology to a model of governance.

2. Justification for PhD Theme

A key factor for information systems adaptation and use is the alignment of technology and social and organizational factors, including the perceptions of key stakeholders (Heeks 1999; Hirschheim et al. 1989). Electronic government or e-Government as a research discipline seeks to investigate how government activity will change as information technology (IT) use becomes the norm, not only in internal operations but also in inter-organizational and client-organizational relations (Gronlund 2003). The purpose of e-Government is to enhance the access to, and the delivery of government information and services to citizens, businesses, employees, other agencies and government entities (Layne et al. 2001). This is a diverse group of recipients, and although not every e-Government initiative will address the entire group, target groups are diverse. Although one of the distinct characteristics of public sector is a complex body of stakeholders and diverse goal structures, the investigation of stakeholder dynamics are not well addressed in the body of e-government literature (Traunmuller et al. 2003).

The number of failed e-Government initiatives is alarmingly high (Heeks 2001). One of the main reasons for this are the unacknowledged gaps between rational design and political reality, and between the private and public realms (Heeks 2001). The public sector is characterized by having a particularly complex body of stakeholders and accordingly di-

verse goal structure (Traunmuller et al. 2003). This is in line with Heeks (Heeks 2001), who also warns that applying information systems or techniques developed for private sector in the public sector realm, without accounting for the differences, can lead to failure. Chadwick and May (Chadwick et al. 2003) found that the majority of digital communication between government and citizens can be characterized as managerial, meaning that the development of e-Government is based on the needs of public administrations, and that the administrations control both which systems are developed, and the nature of the communication.

E-Government initiatives often require horizontal and vertical integration in order to facilitate readily available, seamlessly integrated online services for a variety of customers (Layne et al. 2001). In the process of such integration, the roles of public servants tend to change and extend beyond traditional functional department boundaries. This shift may add additional complexity to the internal structures of government.

The internal end external complexities propose considerable challenges for e-Government projects. Golden and Hughes (Golden et al. 2001) report a case where failure to obtain managerial support resulted in the collapse of a British BPR project aiming at facilitating e-services. One of the major project objectives was to integrate processes across departments. However, department managers only sponsored the development of processes internal to their own department. Nobody was willing to sponsor the larger picture and advocate true integration. This indicates that the relevant stakeholder needs were not met, nor is it clear that they were identified in the first place.

Lapre and van Venrooij (Lapre et al. 2001) demonstrate a gap between the goals of administrations and the needs of citizens. They argue that as a consequence of this gap, future development of e-Government must be participatory of nature. Several case studies provide additional support for arguing that gaps between different stakeholder objectives are a major reason for e-Government failure (e.g. (Golden et al. 2001; Lapre et al. 2001)). This implies that there is a need to map and include those stakeholders that will be affected by a project in order to establish their particular needs.

Although published research on e-Government identifies a gap between the expectations of different stakeholders, identifying stakeholders and mapping of stakeholder objectives have been given little attention. According to (Gronlund 2004), e-Government as a research field suffers from a lack of valid theories to explain the general conditions of the field. This thesis will address this by investigating how stakeholder theory can be applied in order to understand complexity and goal diversity in public sector IT/IS projects.

3. Initial Research Questions
The challenges related to e-Government complexity serve as a point of departure for this research project. The following research questions will be investigated in order to obtain an improved understanding of e-Government complexity:

➢ How are stakeholders and different stakeholder objectives dealt with in the e-Government literature?
➢ Can stakeholder theory improve our understanding complexity in e-Government settings?
➢ Can contradictory stakeholder objectives help explain the relatively slow diffusion of e-Government?

4. Theoretical Background

Studying the fit between information technology and complex operational settings requires knowledge both of technology and the particular setting. The major source of reference concerning setting is the body of e-government research. Stakeholder theory is investigated as a means of achieving a more comprehensive understanding of the complexities e-Government development.

4.1 Stakeholder theory

Since the publication of Freeman's book Strategic Management: A Stakeholder Approach (Freeman 1984) about a dozen books and more than 100 articles with primary emphasis on the stakeholder concept have appeared. The idea that organizations have stakeholder has become commonplace in management literature. Also, studies of health care organization embrace the logic of stakeholder theory (Varvarovszky et al. 2000). A number of IS scholars accept the value of expanding the IS/IT user concept to the wider IS/IT stakeholder concept (e.g. (Gupta 1995; Vidgen 1997)). However, few consciously apply elements from stakeholder theory in their discussion of IS/IT stakeholders.

This research assesses the suitability of Stakeholder Theory (ST) as a possible theoretical contributor to the e-government field. Stakeholder analysis has been used in the e-government context (Murray et al. 2004), but there has as yet been no serious e-government study using the theoretical precepts of ST. Although the stakeholder concept can be traced back to the 1930ies, stakeholder management was originally proposed by Freeman (Freeman 1984) as a practical, effective and ethically responsible way of managing private companies. Freeman argued that the traditional business assumption that organizations should focus on maximizing shareholder profit was inadequate, and that attending to the needs of multiple stakeholders makes the firm more competitive in the long run. Donaldson and Preston (Donaldson et al. 1995) characterized ST as having three distinct but mutually supportive aspects; descriptive, instrumental and normative. Thus the ST literature can be described as a set of management principles which combines:

1. an ethical discussion of the merits of managing the legitimate interests of multiple stakeholders, as opposed to a more traditional view of management as profit maximization on behalf of shareholders, with

2. a way of describing companies in terms of their stakeholder relationships, and

3. toolsets and frameworks as instrumental help for managers together with a discussion of the effectiveness of the approach in relation to more conventional management approaches.

Although this distinction has generally been accepted by management and organizational scholars, Freeman argued that it was artificial and unhelpful (Freeman 1999), whereas (Kaler 2003) argued that the descriptive and instrumental aspects refer to second order theories.

Though ST has its roots in the strategic management literature, it has been discussed and adapted to many contexts, including the public sector. It has also been used in a political context, for instance as the concept stakeholder democracy) in the British Labour Party's 'third way' policy orchestrated by Anthony Giddens.

4.2 Conceptual Fit Between e-Government and Stakeholder Theory

Although Heeks (Heeks 2001) warns of the dangers of applying theories and methods developed to fit private industry directly unto other contexts, the field of e-Government currently needs to expand the base of suitable theories in order to explain and understand the

current situation (Gronlund 2003). This expansion can be achieved in two ways. Either the field can develop theories from the growing base of e-Government case descriptions, or acknowledged theories from other disciplines can be adapted and adjusted to fit the characteristics of e-Government. This research project attempts the latter.

Apart from the original profit focus, there is no serious conceptual mismatch between stakeholder theory and government's objective of providing policy and services for citizens and organizations – society's stakeholders. However, aspects of Stakeholder theory can require some adjustments to provide a suitable contribution to e-Government settings. This thesis contributes a thorough investigation of stakeholder theory with the aim of adapting it to the e-Government domain.

5. Research Approach
5.1 Philosophical Stance
Several authors suggest that information systems research can be conducted with positivist, interpretive or critical approaches (Klein et al. 1999; Orlikowski et al. 1991). Positivist studies are premised on the existence of a priori fixed relationships within phenomena which are typically investigated with structured instrumentation. Interpretive studies assume that people create and associate their own subjective and intersubjective meanings as they try to interact with the world around them. Interpretive studies reject the possibility of an "objective" or "factual" account of events and situations, seeking instead relativistic, albeit shared, understanding of phenomena. Critical studies aim to critique the status quo, through the exposure of what are believed to be deep-seated, structural contradictions within social systems, and thereby to transform these alienating and restrictive social conditions (Orlikowski et al. 1991).

The Ph.D. project investigates stakeholder dynamics in e-Government settings i.e how an information technology structured mode of government affects the reality of different stakeholders. Government and governance are viewed as a social systems, developed and maintained by a variety of stakeholders, all seeking to affect society according to their perceptions of reality and their convictions of an ideal society. However, structure is needed to ensure equal and just treatment for all members of a society. Societies are typically supported by technical structures such as political, legal and economic systems. With the transition towards e-Government, information systems are developed to support existing technical support systems or to devise new structures. This view is consistent with Hirschheim's (2003) understanding of information systems as a branch of the social sciences and that information systems are largely human or social in nature.

5.2 Research Methods - Interpretive Case Study
This Ph.D. thesis attempts to apply an adapted version of stakeholder theory as a descriptive instrument for increasing our understanding of the complex body of stakeholders and how their different objectives affect the development and implementation of e-Government. Although, theoretical underpinnings from stakeholder theory and the e-Government literature will serve as a point of departure, empirical data have been collected from e-Government projects to study stakeholder dynamics in practice.

The thesis have examined 3 cases, two describing stakeholder influence on IS implementations in the context of public sector and one reporting from a joint e-Strategy process involving 11 local governments. Data have been collected by a mix of semi structured interviews, observations and document studies

(minutes, project reports, discussion board postings and e-mail communication). An important issue regarding interpretive studies is the "reporting media" (Walsham 1995). In this Ph.D. work, the majority of interviews have been tape recorded. In situations where the respondent was reluctant to tape recording, the interview was documented by extensive note taking. Field observations have also been documented by notes and summaries of events. The further analysis of the empirical work is conducted in line with Klein and Meyer's seven principles of interpretive case study research (Klein et al. 1999). The principles spring from a hermeneutic philosophy and were developed as a means for judging qualitative case and interpretive research. Although the principles are generally valuable to interpretive research, some of them (e.g. The principle of Dialogical Reasoning, The principle of Multiple Interpretations and the principle of Suspicion) can be particularly valuable for understanding different e-Government stakeholder perspectives and the process of arriving at a shared understanding. Although interpretive studies do not attempt to generalize findings to a population, generalization from interpretive research is possible. This Ph.D. thesis is written as an assembly of published papers where the empirical papers generalize findings as "Drawing of specific implications" and "Contribution of rich insights" (Walsham 1995). However, put together, the thesis will generalize the collected findings as a "Generation of theory" (Walsham 1995), outlining a stakeholder theory for the e-Government field.

6. Project Outcome and Implications

The overall objective of the study is to develop an enhanced understanding of the complexity issues of e-Government projects. Theoretical and case study investigations will be carried out in order to scientifically describe the challenges of addressing multiple stakeholders and aligning their different objectives. Based on these studies I intend to derive an adapted version of stakeholder theory, adjusted to fit e-Government settings, including a set of principles or guidelines for addressing complexity in e-Government projects.

The main scientific implication of the project will be to introduce the stakeholder approach to increase the understanding of e-Government complexity. Aligning existing stakeholder theory with characteristics of e-Government projects and information systems can help provide some of the currently missing theoretical frameworks, necessary for producing rigorous, cumulative research to further develop the e-Government field.

The original stakeholder theory contains a number of practical tools and techniques for handling complexity. Although the main objective of the doctoral work will be to develop descriptive theory for e-Government settings, some of the tools and techniques that will be applied for descriptive scientific purposes can also be helpful for public sector managers in their deployment of e-Government projects. This will support practitioners with insights of how to handle complexity in e-Government projects and increase their ability to satisfy the different key stakeholders of the project.

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The department is organised into four research groups, based on existing research interests. The groups do not represent a rigid structure. Rather they reflect areas of common interests resulting in synergy and collaborative efforts. There is also a degree of overlap between themes adressed by the different research groups which reflects the integrative nature of the field of IS in general.

For more information see: *http://www.hia.no*

Value Awareness in Municipality Website Design

Emma Eliason

Research interest of Emma Eliason concerns effect of website design, both intended and unintended values that are experienced in use. A website is a result of different negotiations of value choices. It is therefore important to be value aware in the design process; to be aware of what values that are prioritized and communicated, especially in the design of government websites. Eliasons overall purpose is to create value-awareness in (eGovernment) website design.

1. Introduction

The design of things makes a difference. It is influenced by many factors, and it affects use. For example, car design is not just a matter of looks, it affects the way you can get in and out of the car if you are less agile than average, and it affects fuel consumption. Web site design also has consequences in many ways, access, time consumption for users, and action space, to name a few. Car design is much discussed in terms of responsibility, as for example excessively large vehicles are sometimes seen as immoral as fuel consumption soars. Similarly, there is a need to discuss the responsibility of web design. What values – intended as well as unintended – are communicated? A design is made in a social context were compromises are made between different design ideals. Designs of webs are often made by transfer of design objects and whole genres from earlier used communication mediums. Hence, designs often replicate existing solutions, intentionally or unintentionally bringing along previously made value choices. As web use changes user roles, often probably permanently as service design is changed, there is a need to, at least, be aware of what these values are, and reconsider whether or not they are still appropriate or necessary. Many old designs were made based on existing technology, so many restrictions – such as page space and distribution costs for a

newspaper – may no longer be equally important. Different designs promote certain user roles and suppress others. It is therefore essential to be aware of, and take responsibility for, the design effects.

This paper summarizes my PhD work that concerns value awareness in municipality website design. Aim, theory, method and intended result are presented.

The Internet is increasingly being used as communication medium by citizens and governments in most countries (Gibson et.al, 2003). The medium has changed the possibilities and restrictions for communication, thus offering new arena for politicians, civil servants and citizens to act on (Åström, 2004). The action space of this arena is not determined by technology but dependent upon the possibilities the citizens are offered to communicate upon. It is designed. Obviously, it makes a difference if information is accessible regardless of time and place and if the citizen can be active and give information (e.g. mail or chat) or just receive (read). But it also makes a difference *how* the possibilities are presented, how the arena is designed and what values it mediates.

The design of new ICTs often built on ideas of existing designs. For example, a web newspaper has borrowed much of its design from the paper original. But this old design was a product not just of ideas but also of existing

technology. Distribution costs and printing technology provided restrictions for the amount of information that could be provided, as well as the design of it. For example, colour printing is expensive and hence use limited. Because design is to some extent inherited, it is important to be aware of what consequences it has, in form of values that are expected and experienced. Designers have to be aware of and consider existing products that have been designed in that specific genre and design standards that exist for the specific kind of product. For example many municipality websites use the newspaper layout, a design that naturally is dominated by different kind of news, mediating a main usage situation to read municipality news. This implies, among other things, user passiveness, a persuasive narrative style, and an information monopoly by the sender. But is news most important for a city? An alternative user role would be active searching, which would require openness as concerns information sources. This ideal is much promoted in the electronic government debate, as self service is a crucial element both of service redesign and of the active and knowledgeable citizen necessary in a democratic society. Borrowing designs from other areas hence means there is a risk to build in value conflicts.

Values are expressed through the priorities made, e.g. what user groups' interests are taken into account and what relations between municipality and citizens are designed, for example one-way communication were the municipality informs the citizens or a two-way communication were the citizen has a participatory role. ICT design is a result of different negotiations of value choices (Klein & Hirschheim, 2002). It is therefore important to be aware of values in the design process; What values that are prioritized and communicated – intentionally and unintentionally –in the design of government websites.

Research aim

The overall purpose is to create value-awareness in (eGovernment) website design. This is achieved by (1) exhibiting the existence of different genres in web design, (2) show how web site design communicates values, (3) identifying reasons for, and consequences of, expected and/or experienced values that are mediated in municipality website design, and (4) show how genres restrict and support designers´ work and hence constitute an inherited action space.

2. Theory

The thesis draws on genre theory, which has previously been used in rhetoric, literature and research on ICT. Genre can be defined as the common sense notion, shared by producer and audience, used to find or produce more generic products, thus creating expectations about what elements to expect (Lundberg, 2001). Lacey (2000) describes genre products as having a common repertoire of elements. For example, in movies the repertoire is setting, characters, iconography and style. Using the repertoire of elements of a genre will ensure the experienced audience feels at home (Lundberg, 2001).

Expectations of municipality website design are, for example, created in the interaction with other websites, how internet as a medium can be used, but they also come from experiences of communicating with municipalities face to face. Hult (2003) argues that a product can be seen as having a physical and immaterial part. The immaterial part consists of the communication between the different stakeholders. The designer and user are communicating, for example, both through the website and through advertisement and descriptions of the product. Opinions are also created in use, based on earlier experiences and expectations. In the interaction with for

example a web site, a user experiences values in use, in a social context.

Mediated values

The need for a dialogue about the responsibility that follows with a design has been emphasized in the design literature (e.g. Klein & Hirschheim 2001; Stolterman & Nelson 2000). The argument is that when we design new technology, the consequences of the value choices that are made in design are impossible to exactly predict. For example, prioritising speed in the design of a car in expense of safety, car accidents with deadly outcome may increase.

Klein and Hirsscheim (2001) propose "design ideals" to refer to values or value standards in ICT development. They find that design ideals are often implicit, only partially defined, and not fully agreed upon by those participating in the system development. The design ideals governing the development may not be shared by all; designers can however not be impartial. Because an implemented system serves some human interest, involves moral value judgments, design and development choices are made to serve some interests at the expense of others. It is therefore essential to be aware of just how values are built into website design. The design of an ICT artefact, its content elements (form and position) and the action space it mediates (what a user can and can not do) communicates underlying values. These values are experienced in use.

3. Method

This study describes and analyzes values as experienced by web users and designers. Value awareness is described and analyzed, and the implications of value awareness are discussed. The research adopts a qualitative case study approach (Alvesson & Sköldberg 2000). Based on a content analysis of Swedish municipalities' front pages and interviews

with users and designers, municipality web genres are described in terms of their form elements and values as expected and experienced by users. The main units of analysis in this work are (1) user's and designers expectations and experiences and (2) the web sites. The sample is Swedish municipality web sites.

Electronic government has come quite some way in Sweden, and increasingly government services are delivered through web sites. Hence, increasingly the websites become "the face of government". This has both a practical side – services have to work – and a psychological – people will perceive government much as it appears through is web sites. The communicational style of the sites is therefore very important.

The research approach consists of four main steps. The two initial steps govern the conduct of the following steps:

1. Identification of genres in current website design
2. Analysis of the offered action space
3. Investigation of what influences that have affected the design solution, and how
4. Investigation of designers' and citizens' expectations and experiences

Step1: Identification of genres

A content analysis of all Sweden's municipality websites has been conducted in order to identify digital genres and characteristics of identified genres, to describe the Swedish municipality website design of today. The focus of the analysis was on the front page since this is the most complex page and the first impression communicated to the users. Also, it is the most designed page. In an iterative process design elements were identified, and categories were created, based on common elements and compositions of elements.

Step2: Analysis of the offered action space

The point of departure in this step is the actions that are supported on the front page by a

website (representing a genre) and in how this support is designed. The issue is, what values that are promoted through the offered action space? What similarities and differences exist between the different design solutions?

De Souza et al. [2001] distinguish between three types of communication that ICT can support, user-system, user-user and designer - user. In the first analysis of the selected front pages the designer-user communication is studied by analysing the communicated producer intent. The second analysis focuses on user-system interaction and user-user interaction. This is done by studying the mediated action space, supported user roles and groups.

Communicated producer intent

This part analyses why the sender wants to communicate. It does so by studying the offered action possibilities. Options include to inform, to promote, and other. In what form is the offer delivered, and to whom - what kind of user- is it directed. Examples include tourist, inhabitant, business, and other. This analysis helps focusing on what design decisions that have been made. The analysis is based on the Yoshioka et.al. [2001] taxonomy of genres that represents six dimensions of genres; purpose (Why), content (What), participants (Who), timing (When), location (Where), and form (How).

Functionality analysis

The focus of this analysis is on how different design solutions support certain actions and inactions, and thereby different user roles (e.g. participant, spectator) and user groups (e.g. inhabitant, tourist). The analysis focuses on the users' use of the website, that is, the supported actions with corresponding functionality. Thereby highlight what communication that is supported, thus which user roles that are supported and which user groups that are intended to perform and interpret the actions. Actions where the result of the action is directed towards the user (e.g. navigation ac-

tions), or towards some person on the producer side (through e.g. e-mail to a civil servant) are identified. The third type of identified actions includes such directed to the municipality and other users e.g. register an opinion that is directed to the municipality and other users through the displayed result on the website.

Step 3: Influences that have affected the design solution

The possibilities that Internet offers municipalities to communicate with citizens can be used in different ways. The new technology can be used to reinforce the old structure, norms etc. or to change for example the communication (Åström, 2004). The chosen use of the technology has been influenced by different values e.g. design ideals and formal values, e.g. laws and norms that concerns how something should be. The focus in this step is on how genres restrict and support a designer's work, constituting an inherited action space. The resulting design also reflects the design process itself – not everything is actively designed. Some things follow from production factors such as the division of work among departments, the use of consultants who bring their designs along in a sometimes tacit way, the copying of designs from other municipalities, and the effects of limited resources and competence.

Literature review

The identified genres in municipality web design will be related to existing genres to make it possible to trace value heritage paths. For example, a common web design copies online newspapers, which carries with it a "news" value, an expectation of daily updates. It also carries expectations of a passive user role, "reader" or "audience" rather than "participant".

Interview with designers

The intention with the interviews is to capture the designers´ experienced inherited ac-

tion space. What values that have been prioritised in the design process, and why? We investigate what ideas have been discussed, what intentions there were, who participated in the design process, what factors influenced certain choices, etc. Questions concerning restriction, both internal– e.g. experience and education - and external, such as laws, economy and user demands. This gives us a view of designers' experienced inherited action space.

Step4: Designers' and citizens' expectations and experiences

Values are studied at three levels of granularity; general, genre and website. The first level concerns a comparison between designers' and citizens' experiences and expectations of general aspects such as what possibilities and/or restrictions they see with Internet as a communication medium. The next level concerns questions related to the identified genres, with focus on the front pages- what use qualities do people expect from certain genres? The last level is the most concrete were citizens and designers will interact with websites representing a genre, hence answering the question how they experience a design in practice.

4. Results

The thesis will make visible values that are expected and experienced related to Swedish municipality website design. This visibility will help improve value awareness in design, and hence contribute to better design. The contribution is mainly descriptive as concerns the empirical results, but also normative in that it discusses how values can be studied. The aim is also to analyse and create an understanding of how the design is dependent on the design process with the restrictions that come out of the social context in which it takes place. The thesis discusses why organisations choose – or arrive at – a certain design

solution and communicate certain values, and what effects this has in use for different user groups, as measured by experienced use qualities.

Genre description

The thesis will provide a structured description of the genres used in Swedish municipality website design with design examples. Different design solutions (genres) will be compared to pinpoint differences and similarities in e.g. the dominating content element used on the front page. We show how different design solutions give priorities to different values, for example by mediating different user roles such as the performer or the listener.

Influences affecting the design solution

Influences come both from existing genres and from the design process itself. As for the first, influences from existing genres will be described by relating the identified genres to existing genres on the Internet. The consequences of these influences are discussed. How, for example, does a replication of a online newspaper in a municipal setting serve to mediate inherited values? Some expectations that follow, for example that the information will be updated on a daily basis, may be excessively demanding for a municipality. While other genres do not create the same expectation of the news updates, they carry other expectations. A "Home Page", for example, may give a more static, informing impression. As for influences from the design process, designers' experienced action space will be described in terms of the possibilities and restrictions they have experienced that affect the choices that led to the resulting design.

Designers' and citizens' expectations and experiences

Designers' and citizens' expectations and experiences related to municipality design will be compared focusing on general values,

genre expectations, and website experiences. This gives a view of both how people experience and interpret certain designs in a pattern of genres, and how the specific sites studied make use of – or not – the "standard" advantage of relying on a genre design.

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