



FP6-2004-27020

Access-eGov

Access to e-Government Services Employing Semantic Technologies

Instrument: STREP

Thematic Priority:

SO 2.4.13 Strengthening the integration
of the ICT research effort in an enlarged Europe

D2.2 User requirement analysis & development / test recommendations

Start date of project: January 1, 2006 **Duration:** 36 months

Date of submission: July 17, 2006

Lead contractor for this deliverable: Germany University in Cairo

Revision: 1.6

Dissemination level: Public

Acknowledgement: The Project is funded by European Commission DG INFSO under the IST programme, contract No. FP6-2004-27020.

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FP6-2004-27020 Access-eGov Access to e-Government Services Employing Semantic Technologies			
<h2 style="margin: 0;">D2.2 User requirement analysis & development / test recommendations</h2>			
Work package:	WP2	Task:	T2.2 / T2.4
Date of submission:		July 17, 2006	
Lead contractor for this deliverable:		German University in Cairo (GUC)	
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Version:		1.6	
Revision:		Final	
Dissemination level:		PU ¹	
Project partners:			
Technical University of Kosice (TUK), Slovakia (Coordinator); University of Regensburg (UR), Germany; German University in Cairo (GUC), Egypt; Intersoft, a.s. (IS), Slovakia; EMAX S.A. (EMA), Poland; Kosice Self-Governing Region (KSR), Slovakia; Cities on Internet Association (COI), Poland; e-ISOTIS (ISO), Greece; Municipality of Michalovce (MI), Kosice; City Hall of Gliwice (GLI), Poland; State Government of Schleswig-Holstein (SHG), Germany.			
Abstract:			
This deliverable reports on the results of the user requirement analysis and provides recommendations for development and testing. The requirement analysis lays the foundation for systems specification (work package 3) and provides input for all other subsequent work packages within the Access-eGov project. The user requirements analysis takes into account the state-of-the-art of service quality and technologies related to the project's scope of e-government applications (deliverable D2.1). It concludes with recommendations how the development of IT components could best meet the user requirements as well as with an evaluation strategy for the pilot and field test.			

¹ The dissemination level uses the following codes:

PU = Public

PP = Restricted to other programme participants (including the Commission Services).

RE = Restricted to a group specified by the consortium (including the Commission Services).

CO = Confidential, only for members of the consortium (including the Commission Services).

Document Sign-Off

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0 Introduction

This deliverable reports on the results of the user requirement analysis and provides recommendations for development and testing. Requirement analysis is a basic task for any kind of systems development. Within the Access-eGov project it is essential because it provides input for the work package WP3 and all other subsequent WPs: The user requirements analysis is to ensure that the further project work is based on a solid elicitation of what the actors involved in the application field expect from new technologies and what they need to fulfil their tasks, respectively. Users' requirements are also used as a base for the preliminary outline of project pilot applications. The user requirements analysis takes into account the state-of-the-art of service quality and technologies related to the project's scope of e-government applications (deliverable D2.1). It concludes with recommendations how the development of IT components could best meet the user requirements.

Developing strategy and instruments for user requirements analysis was the first task of the WP2. A strategy document was disseminated followed by several guidelines how to use the various techniques such as scenarios, questionnaires, interviews, round-table discussions. The actual acquisition of user requirements focused on selected case settings in Slovakia, Poland and Germany, and all user partners contributed to this effort. Besides, one partner (ISO) compiled guidelines on accessibility and held a focus group meeting to consolidate the requirements from this point of view. Finally, the user requirements have been classified along a number of axes so that the subsequent work packages can focus on the user requirements pertinent to their tasks. Based on the user requirements as captured by the activity scenarios, a preliminary evaluation strategy for pilot and field test has been outlined (as prerequisite for WP8).

Within this project requirement analysis started after the project's kick-off meeting at the end of January 2006. A workshop with user partners and developers has been conducted in Krakow (June 27-28, 2006) to discuss and consolidate all results before finalizing this deliverable. Even though the requirement analysis faced a tight time schedule it followed completely the methodology as laid out in the work programme. Only, in some aspects the requirement analysis is not as detailed as desired from the developers' side. Therefore some subsequent tasks will continue selected parts of analysis (as it is recommended in iterative systems development). This kind of continuation has been planned for e.g. in tasks 4.4, 5.4, 7.2 and 8.3.

The structure of the deliverable is as follows: chapter 1 describes the methodology, chapter 2 provides the requirement analysis as well as recommendations for the subsequent WPs, and chapter 3 sketches the evaluation strategy for pilot and field test. The appendix includes all relevant material that has been gathered/produced throughout the analysis.

User requirement analysis always reaches out to the environment of the systems development and use. We do appreciate all contributions to this analysis and would like to extend special thanks to all project partners and external contributors for their input and their commitment to the common effort of bringing out new semantic-based technologies for e-government.

1 Methodology

This chapter describes how requirement analysis has been carried out within the project. Section 1.1 describes the basic approach, section 1.2 introduces the instruments used, section 1.3 documents the disseminated guidelines for instrument application, and section 1.4 reports how the instrument have been applied within the project.

1.1 Requirement Analysis with in Access-eGov

Acquiring user requirements is one of the primary research tasks within work package WP2 “User requirements and State of the Art”. In the process of software development, the purpose of user requirements analysis obviously lies in ensuring that the software application will meet the needs of the users. While the importance of eliciting user requirements is widely acknowledged, the path to achieving this goal is not so obvious. The first step is identifying relevant users as well as their tasks and roles, and then ensuring that these tasks and role are adequately represented during the elicitation process.

For Access-eGov two distinct areas of tasks have been identified in relation to web-based information sharing: 1) the provision of information on eGov services and 2) the use of information related to the use of eGov services (i. e. citizens, companies, etc.). Within these areas the tasks are highly interrelated. We will therefore discuss them within the frame of the *information provider perspective* and the *information consumer perspective*, respectively (see figure 1 and 2).

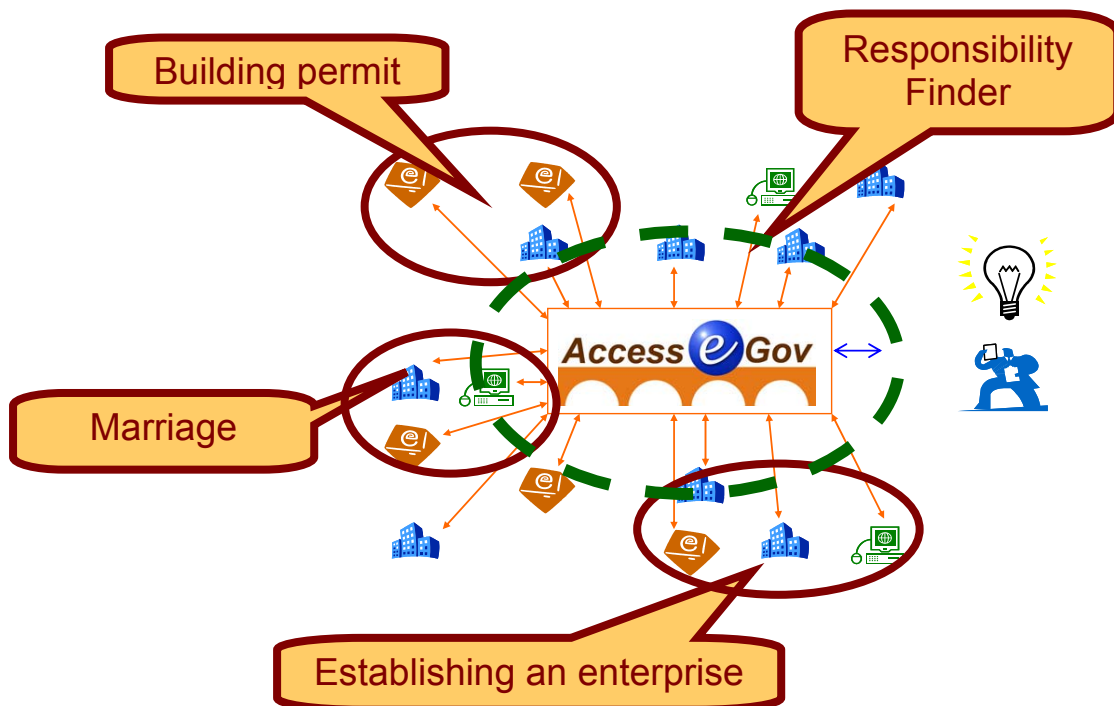


Figure 1 Information consumer perspective with use case examples (see 2.1 for the related scenarios)

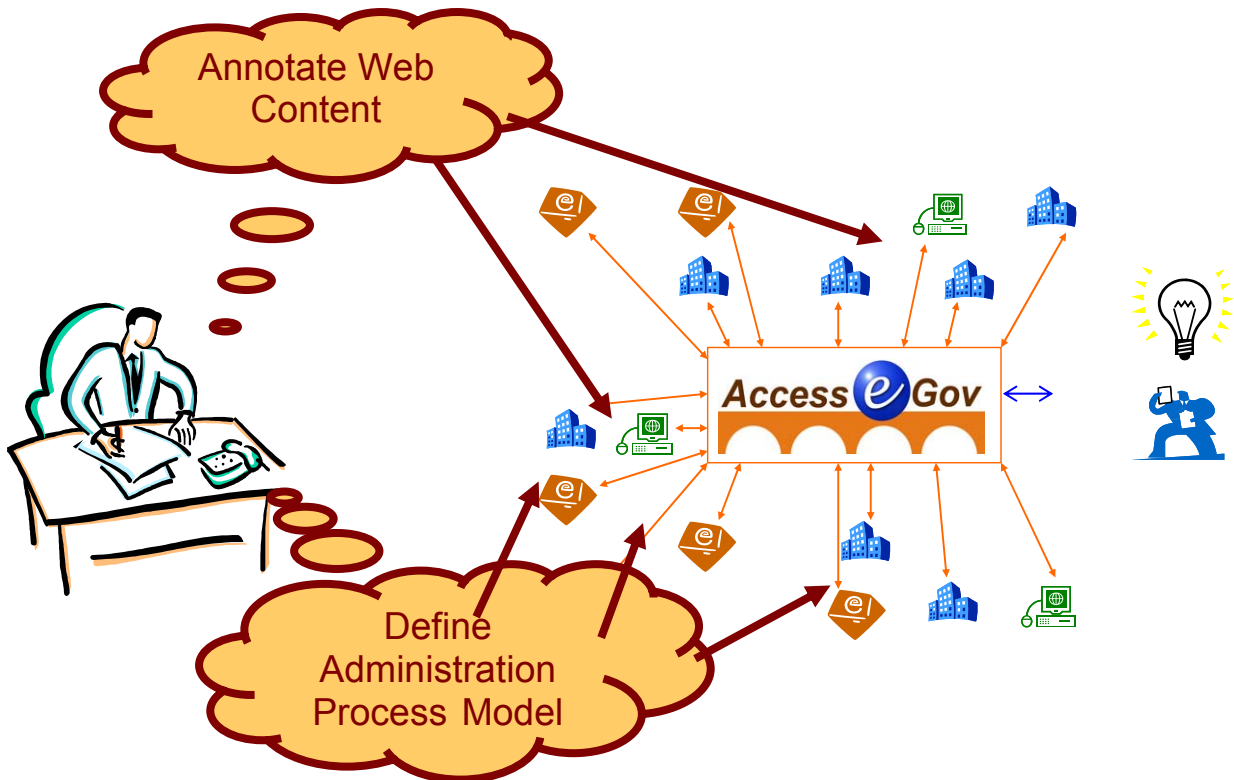


Figure 2 Information provider perspective focussing on interrelating information and processes

As for the roles, administrations are the main information providers, and citizens, companies, and other parties interested in eGov services are among the information consumers. As the user requirements analysis focuses on the needs of information providers and information consumers, we basically assume the following mindset for these groups:

- Administrations evaluate the advent of any new information technology (e.g. provided by Access-eGov) based on the criteria of cost/effort and benefit. I.e., an administration's central concern when considering the adoption of this new technology will be whether the benefit of using the Access-eGov system is greater than the effort that has to be put into integrating it.
- Information consumers expect reliable and up-to-date information that is easy to find and matches their current information need. Furthermore, they expect seamless integration of information finding and actually using and combining eGov services (e.g. within certain life events).

Within these groups, a number of roles can be identified that contribute to task achievement (e.g. administration: clerk, information manager, editor, webmaster, web designer, etc.), including those who contribute to setting up and maintaining the required IT infrastructure. In many cases, we find these roles even in other organizations e.g. IT vendors and IT service providers. Since all actors involved must rely on the administration's IT infrastructure (i.e. it is a critical success factor for the information sharing process), providing the *IT infrastructure* has a focus of its own and is accounted for in a separate perspective (see figure 3).

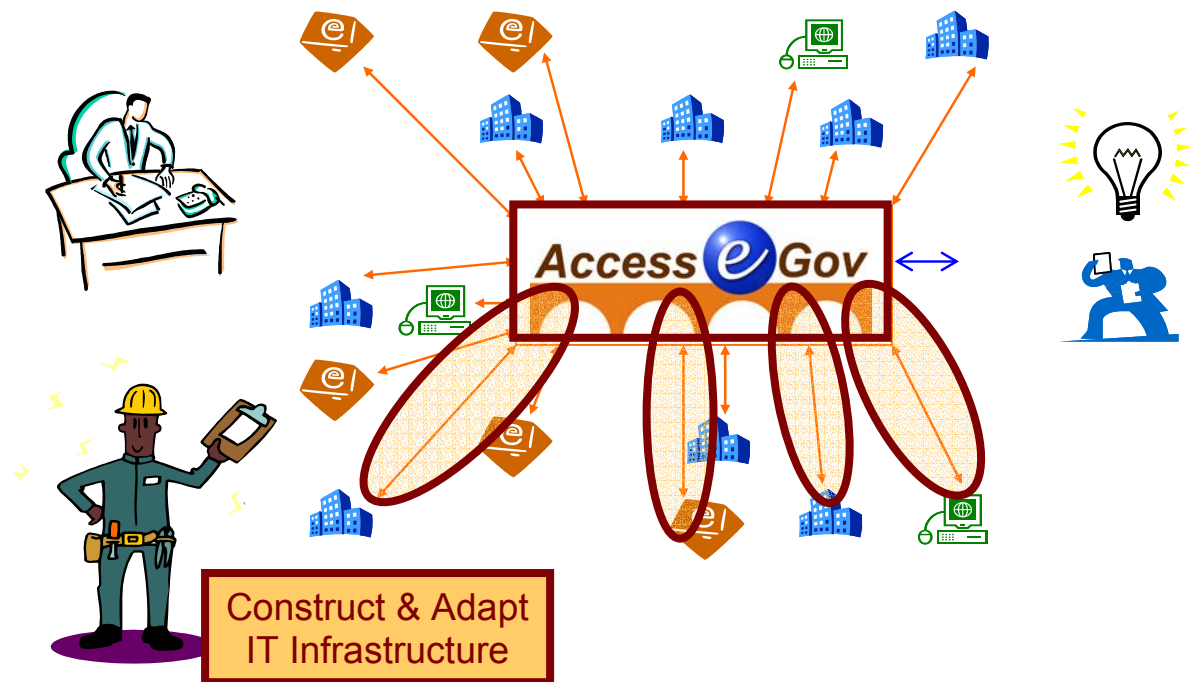


Figure 3 IT provider perspective focussing on interoperability

Furthermore, by systematically collecting and comparing requirements from Slovakia, Poland, and Germany, the elicitation process is sensitive to regional differences that might stem from cultural and legislative diversity (in addition, during testing the pilots will be also evaluated from an Egyptian (i.e. non-EU) point-of-view).

1.2 Instruments

For requirement analysis the following instruments have been applied which are explained below in more detail: activity scenarios, questionnaire, interviews, round tables and workshop.

1.2.1 Activity Scenarios

Activity scenarios describe how a specific task will be completed using the future system. The description has the form of a narrative and is written from a user's point of view. Scenarios can serve different purposes. We use activity scenarios in two ways: 1) as a way for developers to learn from the users what they (the users) require of the future software system, and 2) as a means of evaluating and documenting the future software system. Thus, activity scenarios should not be viewed as documents alone, but should also be understood as a *process of learning*.

Different types of scenarios differ in their level of detail and their point of view. An activity scenario is more detailed than a mere overview of the system, but it does not mention any technical details or ways of handling (i. e. user interface aspects are usually not in the foreground at this point).

An activity scenario should describe *a single task* from start to finish from *the user's point of view* using terms from the user's problem domain (language). This also includes an explicit description of the task's context, i. e. how it was initiated, which documents are needed, as well as what the results are and how they may be used later.

1.2.2 Questionnaires

While the activity scenarios give an impression of how the future system can be used by users, questionnaires employ a more systematic approach. The use of questionnaires enables

collecting information about the existing organizational and technical context as well as future requirements in a systematic way focusing on certain areas of special interests and investigating details to the extend needed. They also provide a way to ask for input from other relevant actors, e. g. IT vendors.

Based on the responses to the questionnaire the summary should break down the results according to e.g. topics, perspectives, task, roles, and regions that have been recognized so far. Additionally, a set of important aspects can be identified to be examined in more detail in the interviews.

1.2.3 Interviews

Following up the questionnaires, interviews can provide missing explanations and interpretations, clarify inconsistencies as well as provide important background information. The interviews will be used to collect detailed requirements with regard to the diversity of both tasks and roles (management, technicians, etc.). More specifically, the interviews can be used to examine those aspects that have been identified from questionnaires as being important. This can be either done by asking for more details on a specific point or by pointing to inconsistencies that need clarification.

During requirement analysis, interviews were conducted in the form of a *guided interview*². In a guided interview the interviewee is not asked to answer questions one by one (like a questionnaire). Instead, the interviewer presents a topic and asks the interviewee to comment on this in her or his own words. There are no predefined answers to choose from and the interviewer should not pass judgment on the answers provided by the interviewee. The interviewer will make notes of the answers and use these note to compile an interview result afterwards. If feasible the results should be later on verified in a discussion with the interviewee.

1.2.4 Round Tables and Workshops

A *round table* is an informal meeting of interested parties with a common goal. A round table can be regarded as an open forum to discuss ideas and exchange opinions, being only weakly structured. A *workshop* on the other hand is more firmly structured and planned. It sets specific targets and will usually involve certain predetermined activities to achieve them. Both round tables and workshops should be held in such way as to facilitate the crossing and matching of the participant's different perspectives, roles, and regional points-of-view.

Within Access-eGov, the aim of round tables and workshops is to reach a consensus among the actors involved or to clarify the different viewpoints that might lead to different (and sometimes even contradicting) requirements. Each user partner should hold round tables as necessary to support the creation and discussion of scenarios and questionnaire & interview results. When the complete user requirements package has been collected (following the interviews), a final workshop with all project partners will be held to reach a consensus about the user requirements.

² cf. Flick, Uwe: *Qualitative Forschung – Theorie, Methoden, Anwendung in Psychologie und Sozialwissenschaften*. Rowohlt Taschenbuch Verlag, 2000

and Züllighoven, Heinz: *Object-Oriented Construction Handbook*. Morgan Kaufmann Publishers and d-punkt Verlag, 2004.

1.3 Guidelines for Instrument Application

This section documents excerpts of the guidelines that have been disseminated among the partners to ensure a coherent application of the analysis instruments as introduced above (see annex for complete versions).

1.3.1 Description of the Overall Process

User requirements analysis was carried out using the mentioned sets of instruments; each should be regarded as being part of a continuous process supplementing others:

- 1) The *activity scenarios* present particular aspects of the future system from a user's point of view. They provide a vision of future use in an integrated way but focus on selected tasks and details only. These descriptions give user partners and developers alike a focal point to share and discuss their ideas.
- 2) The use of questionnaires enables collecting information about the existing organizational and technical context as well as future requirements in a systematic way focusing on certain areas of special interests and investigating details to the extend needed.
- 3) Following up the questionnaires, interviews can provide missing explanations and interpretations, clarify inconsistencies as well as provide important background information.
- 4) Finally, the results from scenarios, questionnaires and interviews are discussed in a number of round tables and workshops with the relevant stakeholders. The aim is to reach a consensus among the actors involved or to clarify the different viewpoints that might lead to different (and sometimes even contradicting) requirements.

Throughout this process GUC has provided guidelines and specifications how to implement these instruments within Access-eGov. Excerpts of these guidelines are documented in the following subsections (for complete guidelines see appendix).

1.3.2 Activity Scenarios

The user representatives (primarily liaison officers for public administration) are asked to contribute the initial activity scenarios. Each scenario describes a single task and related activities that users of the future system must perform in order to complete the given task. The scenarios are then discussed with the developers. Their feedback will point to possible misunderstandings or misconceptions between the user representatives' and the developers' point of view. Based on this feedback the activity scenarios will be rewritten, again letting the developers give feedback afterwards.

This repeated cycle of feedback and rewriting will improve the developers understanding of the users' requirements while giving the user representatives a chance to form an idea of the future system.

The following guidelines may be used to guide the writing process:

- Describe a single task and its related activities from start to finish.
- Mention other tasks that are
 - inherently related and / or
 - described in other activity scenarios
- State the reason for performing the task.
- State the place and time of the scenario.
- Explicitly state the names and functions of

- the task (e.g. “to acquire a working permit for a German citizen in the city of Košice”)
 - activities (e.g. “contact the personnel department to get application form 42B/7”)
 - functional roles (e.g. “chief information editor”, “Polish citizen”)
 - places, documents, pieces of information etc. (e.g. “application form 42B/7”)
 - results (e.g. “email-address of responsible department”)
- Write everything from *a user’s point of view, using the user’s language and terms*.
 - Use active verbs, as if you were actually performing the task yourself.
 - Write approximately to two to five pages of text.
 - Don’t hesitate to add drawings or pictures if you think they make the scenario clearer.

Cross check for scenario contributors

Please use the following questions to check if your activity scenario contains all the necessary information:

- ✓ Which specific task is described? What is the name of the task?
- ✓ Which activities need to be performed to complete the task?
- ✓ Where and when do the activities take place?
- ✓ Who is responsible for performing the task and what is the name of that person’s functional role?
- ✓ Why does she perform the task? Who or what initiated the task?
- ✓ Which resources does she need to begin the task and which resources during the task?
- ✓ Which activities are supported by the future system and which activities are not supported?
- ✓ What is the result of the task? How will it be used later on?

The scenarios’ importance is reflected by the following time line for Access-eGov activity scenario production and use: the scenarios provide focal points for the requirement analysis activities, stimulate learning and common understanding among all project partners (and beyond), and provide the basis for many other development and evaluation tasks to come. Therefore, collective diligence in scenario production and use is essential and will certainly pay off, especially ensuring that the user perspective will be considered throughout the whole project.

1.3.3 Questionnaire

The questionnaire included a structured introduction explaining for the respondent how to use the questionnaire (see appendix). The user partners were given only instructions (deadlines) and some guidelines for translation:

- Translate the questionnaire and Activity Scenarios as necessary. We recommend that you at least translate the questionnaire and provide a translated abstract of each Activity Scenario.
- Translators: please pay special attention to the translation of the vision under “2.2 Task Identification”. In the first vision-box, the last paragraph reads:

Anna wants to look up this information using the new on-line responsibility finder of the state of Schleswig-Holstein in Germany. Anna chooses to search by provision of service and enters the term “**marry**”. The responsibility finder presents her with a number of results, including “**Marriage**”, “**Marrying** a foreign citizen”, “**Weddings** next Sunday”, etc. Each of the results includes a short explanatory sentence of the service provided. Anna chooses “Marrying a foreign citizen”.

- One important point of this paragraph is that the term “marry” and “wedding” are semantically related while being spelled very differently. For the translation this relation should be preserved as much as possible.

1.3.4 Interviews

The interviews are mainly carried out as follow up activities of the questionnaires. However, additional aspects should be included, which have not been addressed in previous analysis methods. The interviewees are selected from the group of questionnaire respondents based on criteria outlined below and from additional focus groups, which are expected to significantly contribute to elicitation of requirements. The topics addressed during the interviews are based on the analysis of the questionnaires, the activity scenarios and other considerations that were taken into account (see below). In addition, the interviews should cover topics that have either not been addressed in the questionnaire (like accessibility issues) or that are of relevance from a local point of view.

The interviewees were chosen by the local partners based on the following criteria. Interviewees should primarily be selected based on their potential contribution to the process of user requirement analysis:

- The interviewee may contribute by providing additional insights that go beyond the topics of the questionnaire.
- The interviewee provided answers in the questionnaire that were unclear or contradictory, requiring further explanation.
- The interviewee plays an important role for the realisation of the project.

Based on these criteria one or two interviewees should be chosen from each perspective for a total of four to six interviewees. This ensures that the local requirements of each perspective are considered.

The interview

In a guided interview the interviewee is not asked to answer questions one by one (like a questionnaire). Instead, the interviewer presents a topic and asks the interviewee to comment on this in her or his own words. There are no predefined answers to choose from and the interviewer should not pass judgment on the answers provided by the interviewee. The interviewer will make notes of the answers and use these notes to compile an interview result afterwards. If feasible the results should be later verified in a discussion with the interviewee. Based on the interview results COI will prepare a digest that will be used.

A guided interview can be seen as a mixture between a conversation and a predetermined interview as defined in this guide. This guide determines two aspects of the guided interview: a) the way the interview should be held (the process) and b) the content or topics of the interview, which may vary depending on the interviewee’s perspective (consumer, provider, and IT provider perspective).

The interviewer should try to cover all the topics that are relevant for a certain perspective. This may well be done in the fashion of a conversation. The next sections describe the interview process in detail.

Before the interview

The interviews should not be a simple repetition of the questionnaires. Instead, the interviews should complement the questionnaires and focus on three aspects: 1) **attitude** of the interviewee towards the Access-eGov visions, 2) **problems** the interviewee sees for the realisation of these visions, and 3) possible **solutions** as suggested by the interviewee. In order to adequately address these issues, the interviewer needs to make himself familiar with the interviewee's answers to the questionnaire. He should also identify any answers that need clarification and note these down.

Before the actual interview the interviewer should prepare by (re)collecting some information about the interviewee:

- Who is the interviewee?
- What does she do? What is her position and role?
- Where (for whom) does she work?
- What is the perspective that this person will be interviewed for? (Information consumer, provider, or IT provider)

The interviewer also needs to study this guide and the interview topics to make himself familiar with the subject of the interview.

Holding the interview

The interviewer shall ask open questions³ and let the interviewee answer at his or her own pace. An open question can sometimes lead the interviewee to not answer the original question but instead wander of to different topics. This is not necessarily bad and should not be interrupted immediately.

Ideally the interview should be conducted by two interviewers: one in the role of the person asking the questions and one in the role of the note taker. This way, the interviewer can fully concentrate on the interviewee and is not distracted by having to take notes, which may otherwise break the flow of the interview. Both interviewers can agree before the interview to switch roles during the interview. However, this should be kept to a minimum in order to minimize distraction. In case it is not possible to have interviewers with different roles, a different means of recording the answers needs to be taken. If the interviewee agrees, the interview can be recorded on tape; otherwise the interviewer has to take notes during the interview herself / himself.

The interview should commence as follows:

- Try to create a friendly and relaxed atmosphere by first introducing yourself(s), the goal of the project and the interview process. Let the interviewee know that there are no right or wrong answers and that you are interested in their personal opinion. Also mention that the information will be treated confidentially if they wish.
- You should first ask the interviewee what he remembers to be the most fascinating thing in the visions. For example. You may ask: **What was the most fascinating thing in the visions that were presented in the questionnaire?**

³ An "open question" is a question that cannot be answered by "yes" or "no". An example of an open question: "How do you feel?" An example of a closed question: "Do you feel good?"

- You need to make sure that both the organizational and the technical aspects are covered. If the interviewee's answer focuses one aspect you need to later ask about the other.
- In case the interviewee cannot recall the vision, you should recount the vision in a few words. If the interviewee still cannot or does not want to answer this question, proceed.
- After hearing about the positive aspects, you should turn to any problems that the interviewee sees with the visions. For example, the second question may be: **What do you see as the biggest obstacle on the way to realizing this vision?**
- Again, if the interviewee only mentions one aspect (either organization or technical), remember to ask about the corresponding aspect.
- Having talked about the problems, you should then ask the interviewee for possible solutions for each of the obstacles. For example, you may ask: **What solution can you suggest to overcome these obstacles?**
- Again, you should make sure both organizational and technical aspects are addressed and that all mentioned obstacles are covered.

Please note: The interviewer may deviate from this interview guide if he sees the need to do so. However, any deviation should be documented in the interview summary including the reason for the change. In addition to the questions above we have provided a list of sample questions at the end of this document. Whether or not it is necessary to ask a question or go into details depends on the local conditions. If user partners see specific topics to be a dominating concern among the local parties, then these topics should be addressed during the interview.

The interview results and review

The interview summary should be prepared using the summary template provided. Immediately following the interviews the interviewer(s) should go through the notes and add any comments that are missing. They should also prepare a short interview summary as soon as possible. This summary is the result of the interview and should be prepared no later than the day following the interview. The summary should contain all the main points of the interview and should be based on the notes taken or the taped recording.

In addition, the summary may include some information about the interview's context and atmosphere. Maybe the interviewee constantly wanted to talk about other topics than you had intended, then please make a note of this. Maybe the interviewee was getting bored at some point during the interview; this should be mentioned as well. Any information about *how* the interview proceeded should be mentioned.

If feasible the interview summary should be discussed with the interviewee no later than one week after the interview. During this review session the interviewee is given the opportunity to verify if the summary prepared by the interviewer(s) corresponds with her or his own view. If the interviewee requests changes to the summary, these changes are incorporated.

1.3.5 Round Tables

A round table should be regarded as a meeting that is only loosely structured. It is an opportunity for the participants to exchange ideas and form a common understanding. Local partners may decide to hold several round tables with different goals and different groups of participants. Here, we will focus on round tables for the specific purpose of answering the developers' questions.

Answering all these questions might prove a difficult task. The reason is, that from the users' point of view these kinds of questions are often difficult to understand and therefore also difficult to answer. Round tables should ease these difficulties by bringing developers and users

closer together and thus enabling them to form a common understanding of the problem domain. Even if a number of questions remain unanswered this should not be regarded as a failure at all, instead it should be regarded as the beginning of an iterative process that should be followed up during the course of the project.

We assume that every round table is organized and attended by a moderator and a note taker, who should both be familiar with the subject of the round table. For the specific goal of answering the developer questions we suggest the following approach.

From scenarios to models to systems development

In order to better understand the questions of the developers, users should know the motivation behind the questions. Simply put, during development of the future system two kinds of models are needed:

- **Information Models:** include knowledge about what kind of information is needed, how the information is structured, interrelated and so on.
- **Processes Models:** include knowledge about the relevant processes, their flow, and their interrelation and so on.

Thinking in terms of the development process, this can be regarded as the step from the scenarios towards a set of models (i. e. information models and process models) of the future system, which will form the basis for the development of the software system.

Making this motivation behind the questions explicit to the users will help the users answer the questions as well as understand the importance of their answers.

Facts versus fiction

Of course, for the developers it would be most helpful if the users were able provide definitive answers to all their questions. For some questions this may easily be done, for example, through examining a given situation within the administration. However, many questions may not easily be answered because they refer to a situation of future use.

For example, question number 1 asks what kinds of forms exist for interaction of citizens and administration. In case such forms exist, the user partners are able to provide a definitive answer either themselves or by doing some research. This is what will call a *factual* answer. A factual answer is usually determined by current practice or the environment (laws etc.) of the user partners.

On the other hand, not all communication will be based on forms and for these situations, the user partners may have to “invent” an answer; that is, user partners will have to decide how they would want the interaction to take place using the future system. This is an example of what we will call a *preliminary* answer. A preliminary answer may change during the duration of the project when the users’ understanding of the system changes.

It is generally helpful to document, which answers (or parts of an answer) are factual and which are preliminary. In case of a factual answer it is helpful to comment on why the answer is regarded as factual (for example, by noting the relevant law). In case of a preliminary answer it is helpful to add a comment about which alternatives exist and why a certain alternative was chosen.

Suggested steps how to proceed

Preparation

- Focus on scenarios. Because all questions pertain to the scenarios, these should be placed in the centre of attention. Before the round table all participants should make themselves familiar with the scenario(s).
- Users should read all the questions and should try to get as much information as possible beforehand. E. g. discuss the issues with colleagues etc. Users may also prepare their own questions or comments that come up during preparation.

Meeting

- At the beginning of the round table copies of the relevant scenario(s) should to be passed out to every participant. The moderator should also describe the content of the relevant scenario(s) in a view words.
- Try to create and maintain a relaxed and productive atmosphere. Everyone should acknowledge that there are no ready made answers. The round table is a way to explore these new grounds as group of people that share a common goal, though their view points may be different.
- Try to follow the ideas of information models vs. process models and factual vs. preliminary answers in order to facilitate communication of the results to other project members.
- Identify those issues which cannot be resolved now but later need follow up activities (e. g. meetings based on further investigation, more detailed scenarios, prototypes etc.)

Documentation

- Documentation of the results should be prepared by the developers based on the concepts suggested above.

1.4 Instrument Application in Access-eGov

This section describes how the suggested instruments have been applied in Access-eGov so far. The results of the application are documented in chapter 2 of this document.

1.4.1 Activity Scenarios

The user partners were asked to contribute the initial activity scenarios from the information consumer perspective (Poland: GLI+COI, Slovakia: KSR+MI, Germany: SHG). The following activity scenario tasks have been identified and agreed on during the kick-off meeting (end of January 2006):

- Establishing an enterprise (authors: GLI+COI)
- Land-use planning (authors: KSR+MI)
- Marriage / Responsibility finding (author: SHG)

Furthermore it was agreed on elaborating one additional scenario from the information provider perspective. Since this task will be challenged most during the field test, SHG was asked to provide an additional activity scenario covering the necessary preparation of eGovernment services (to be accessed during the above activity scenarios):

- Enriching administrative Web content (authors: SHG + GUC)

First drafts were collected, shared, and all partners were asked to provide constructive feedback to scenario contributors. Rewriting the scenarios was based on partners' feedback, respectively.

1.4.2 Questionnaire

The questionnaire applied here included a number of visions that describe how a future e-government system might work. Each vision presented a possibility, and respondents were asked, whether they like to see these or different visions to become reality, and what kind of obstacles they see implementing these visions. For many questions possible answers were suggested in small print just to clarify the scope of the questions and stimulate respondents' thoughts (see appendix for topics and complete questionnaire).

During requirement analysis the user partners have received questionnaires as MS-Word-documents written in English. If translations were necessary, they had been carried out by the user partners.

The user partners were responsible for identifying and contacting local representatives of the above mentioned stakeholder roles (information providers, information consumers, and IT infrastructure providers). Care should be taken that enough relevant stakeholders participate in this process in order to ensure that the perspectives of the *information provider perspective*, the *information consumer perspective* and the *IT infrastructure perspective* are sufficiently covered. User partners forwarded the Word-documents (or translations thereof) to the stakeholders.

The stakeholders were asked to answer the questionnaires within a certain amount of time (max. three weeks or less, depending on the need for translation). Any question that may arise during the completion of the questionnaires was directed to the user partners first, and, if they could not answer them, passed on to GUC and/or COI for clarification. The user partners were responsible for identifying and contacting stakeholder representatives in their region, asking them to fill out the questionnaires, and collecting the results. The completed questionnaires were returned to COI and GUC via the user partners. The completed questionnaires were used to compile a summary result which was distributed for feedback to all partners.

A total number of 30 questionnaires were received with eight coming from Poland, nine coming from Slovakia, and thirteen coming from Germany. Most respondents (21) work for administrations or are elected representatives. The remaining respondents came from IT service providers for public administrations and other organizations, which are not directly related to administrations.

1.4.3 Interviews

The user partners identified prospective interview candidates (not all who had answered the questionnaire had to be interviewed). Interview candidates were chosen both according to their role and perspective, as well as their expertise with regard to the above mentioned aspects. The (verified) results are to be passed to COI and GUC for preparing and circulating a summary result from all interviews.

The interviewers were asked to cover the general themes as indicated in the matrix below:

	<i>Organizational Aspects</i>	<i>Technical Aspects</i>
<i>Vision</i>	What do you like about the organizational aspects of the vision?	What do you like about the technical aspects of the vision?
<i>Problems</i>	What are the organizational obstacles you see on the way to realizing the vision?	What are the technical obstacles you see on the way to realizing the vision?
<i>Solutions</i>	What solutions can you suggest for the organizational obstacles?	What solutions can you suggest for the technical obstacles?

Table 1: Matrix of themes

A total of three interview partners were interviewed as belonging to the information consumer perspective, all three coming from Slovakia. However, most of the other interviewees also expressed their opinions with regard to their role as potential users (as citizens) of Access-eGov services, i. e. from an information consumer perspective. All expressed opinions relating to this perspective are considered.

Seven interviews were conducted with respect to the information provider perspective, three in Poland, one in Slovakia, and three in Germany. A total of nine interviewees participated (some interviews were with more than one person at a time).

There were also four interviewees conducted for the infrastructure provider perspective, two from Poland and two from Germany; however, most of the views expressed were identical with the ones of information providers. This may be due to the fact that two of the interviewees are themselves employed by administrations.

1.4.4 Round Tables & Workshop

Based on the scenarios, which have been created in the beginning of the user requirements process, the Access-eGov developers have prepared a list of question (see appendix). The questions reflect on specific details of the scenarios from the developers' point of view. The answers are needed so that the developers' may better understand the technical implications and possible implementations of the scenarios.

Round tables were held in all three regions of the user partners in order to provide answers to developer questions and to foster a common understanding between developers and user partners. The participants of these round tables were selected by the user partners and came from the organizations of the user partners, the developers, and—in some cases—other relevant stakeholders. The number of participants ranged from four to thirteen.

An addition, a fourth round table (Greece) focused on accessibility issues of all scenarios (eleven participants). A fifth round table was conducted focusing on interoperability issues in Germany (five participants).

Finally, a workshop with user partners and developers has been conducted in Krakow (June 27-28) to discuss and consolidate all results before finalizing this deliverable (more than 15 participants).

2 Results of Analysis and Recommendations

Requirement analysis is a basic task for systems development. In this project it generates input for WP 3 and all other subsequent WPs. Therefore, the purpose of this chapter is mainly to relate the primary findings of the requirement analysis (as documented in annex) to the different development tasks within the project (as organized by work packages). The requirement analysis has been guided by the partners' vision of future IT application as well as by the project's discourse seeking to achieve consensus. The starting point for requirement elicitation has been the activity scenarios provided by the user partners (section 2.1). The second step of the analysis (2.2) is to compare the findings elicited in the different regions of the pilots and field test in order to understand similarities and differences. The section (2.3) summarizes the general e-government requirements which have been highlighted by the state-of-the-art-analysis (D 2.1), and their relevance for the project is discussed. The core of the chapter is section 2.4 presenting the requirements to be taken into account by developers in table form. Finally, section 2.5 relates the results of the requirement analysis to the subsequent work packages.

2.1 Activity Scenarios

This section briefly introduces the scenarios provided by user partners (see annex for complete versions). Basically, the user partners were free to suggest certain use cases for scenario writing. However, all use cases and scenario must refer to the challenge of semantic interoperability in terms of finding and combining e-government services. The scenarios 1-3 are written from the information consumer perspective, scenario 4 highlights the (future) work of the information providers. In this deliverable we mainly focus on the requirement analysis from information consumer perspective; the scenario 4 will be the basis for task 7.2 ("Development of methods and guidelines for semantic mark-up of e-government resources").

2.1.1 Scenario 1: Building Permission

This activity scenario is based on the intention of building a new family house in a municipality of the Košice region. At present, one can say a citizen becomes a victim of complex processes he/she needs to deal with while obtaining a building permission. The Access-eGov system is intended to ease such procedures using an interactive web-platform which provides citizens with useful guidance of "what and how to do it". As a result, a user shall be easily going through all of the "building permission procedures" required with no additional questions raised.

The added value delivered by the Access-eGov solution can be identified by more efficiency and performance achieved through processes optimizing and making the concerned public services integrated and thus more convenient for citizens as final beneficiaries. Doing so will also ensure more transparency in the public services delivery so that it shall encourage people using electronic public services more intensively. The ICT components to be used are:

1. Electronic correspondence
2. Online forms provision
3. Online tracking of the procedure (graphic indication of current status, timings and count-down of stated time period etc.)
4. Online information on the costs of procedure (its parts), estimations on project documentation costs, etc.

5. Online list of all relevant institutions

2.1.2 Scenario 2: Establishing an Enterprise

The service described in the scenario is the establishment of an enterprise (starting one's own business) by the user. This service consists of four main tasks:

- a) Registration in the City Hall (the local government).
- b) Registration in the Statistical Office.
- c) Registration in the Tax Office.
- d) Registration in the Social Insurance Agency.

The main goal of delivering that service is to enable citizens to establish their enterprise via Internet (in those cases where it is possible) and to deliver complete information related to the service. The information will be provided by way of dialogues between the user and an intelligent agent (a component of the Access-eGov platform), correct interpretation of the user's queries, and additional questions to the user. The aim of performing each task is to give the user all required instructions, to point out activities he should perform, places he should go to, forms he should fill in, and to provide access to e-services. The overall goal is to support the user to start her or his own business.

The scenario is based on the general description of the Access-eGov solution as an IT system supporting citizens or businesses in the context of public services provision. In other words, the Access-eGov platform will use the detailed and semantically annotated information about the public services in order to provide the customer with appropriate advice on steps which have to be taken in particular a business episode or life-event. The system should act as a CRM system with a profile of the user in order to suggest an appropriate track of activities. Access-eGov needs to integrate legacy systems which already provide web services or electronic forms.

2.1.3 Activity Scenario 3: Marriage / Responsibility Finding

A German citizen lives in a municipality of Schleswig-Holstein. Her future husband is a Slovak citizen. They have decided that they want to get married within the next four weeks. In case they are able to find a special place for the wedding ceremony (like a ship or a light house) they are willing to wait a little longer and also travel for up to 100 km. For example they want to find out what their options regarding the wedding location are, and what kind of legal preparations and documents are necessary, specifically:

1. What kind of legal prerequisites exist? (Citizenship, etc.)
2. What kinds of documents are needed? (Birth certificate, family records etc.)
3. Will the groom, as a foreign citizen, need to supply additional documents?
4. From where are these documents available? (Responsible authority including contact details and office hours.)
5. Available locations for wedding ceremony, including available dates
6. Nearby special locations for wedding ceremony (like a ship or a light house).
7. How and where can she book a wedding in one of those locations?
8. Any other information that may be of relevance.

The “responsibility finder” (an electronic service providing information which administration is responsible for a given citizen’s concern) now presents the following information:

- Legal requirements in the form of a generally understandable short text.
- Required documents with a short description of what it is and where it can be obtained, including a link to more detailed information like expected time involved in obtaining it etc.
- Which civil registry offices (“Standesamt”) perform weddings?
- A list of other available locations for the wedding ceremony, including a link to broaden the search.

This scenario assumes that there is a state-wide responsibility finder for state of Schleswig-Holstein in existence which was built using Access-eGov components and other technology. Access-eGov enables information to be shared and integrated from different sources. E. g., in the scenario the information comes from different sources:

- The description of legal requirements could come from a catalogue of descriptions provided by the state of Schleswig-Holstein.
- The information about where the required documents can be obtained (addresses, contact details, etc.) could come from each of the administrations that are responsible for each document.
- The information about other available locations can come from administrations as well as private parties that offer this kind of service.

For the users this means that they do not have to search for information and services in different places. Instead, they visit a single responsibility finder on-line and get all necessary information from one place.

2.1.4 Scenario 4: Web Site Annotation

This scenario is concerned with the perspective of information providers. The term “annotation” refers in the context of semantic technologies to the process of enriching information with meta-information. For example, the digits “24103” on a web site are basically meaningless to a computer system, while a human visitor is able to infer from the context of the page that this number represents the zip-code of a city in Germany. In order to enable the computer to identify the zip-code (and do other things with it, e. g. compute the shortest route to the city) the number will be annotated with appropriate meta-information. In this scenario the annotation process is presented with two different cases of communal web-sites:

- a. the web site of the city of *Eurocity*, which has a full-time public relations employee (by the name of *Anna A.*) who uses a content management system (CMS), and
- b. the web site of the small community of *Betown* with static web pages where an unsalaried honorary worker (by the name of *Bernd B.*) is doing the annotation.

For each case three different tasks with a different scope will be described:

- Task 1: Complete annotation of the existing communal web site
- Task 2: Creation and annotation of a single, new web page (a page for a new authority is created)
- Task 3: Annotation of a new element on an existing web page (the opening hours of an office have changed temporarily)

This scenario assumes that there is a state-wide responsibility finder called “ZuFiSH” for the state of Schleswig-Holstein in existence which was built using Access-eGov components and other technology. It also assumes that there is a “central annotation service web site” available which provides information, resources, and on-line services for annotation of web content. The development of components for such a central annotation service will be part of Access-eGov.

2.2 Analysis of the Results

This section provides an analysis of the results which have been documented in the previous section. Viewpoints of analysis are the three perspectives (information provider, information consumer, and infrastructure provider), and the variations by regions/countries.

2.2.1 Questionnaire Analysis

Comparing questionnaires from all countries, all users prefer their national languages visiting web sites, but most of them do not have problems with English and do not mind dealing with web sites in that language.

Information Consumer Perspective

Most users would like to use system providing information from different areas. These people who do not want it prefer personal contact and conversations with responsible people; they see it as the best way of completing missing information. It seemed that it was especially important for German users which have been questioned.

Both public and commercial services available on administration web sites are acceptable for most users but with some limitations (it should be obvious which information is public). These who do not want to have commercial ones emphasise that administration services should be the most important. They prefer looking for commercial ones themselves.

Most users do not want to provide private information (e.g. citizenship) on the Internet, they do not want to share that information first of all because of matters of security. The issue was the most important for German users.

There is a significant difference between German users in comparison to users from the other two countries. German respondents do not want to share private information (e.g. taxes, finances) and let public entities share the personal information between them even if they could get some valuable tips connected to it and derived from it. Their main reason is aspect of security. Slovak and Polish people desire such information what means they approve of providing some personal details on-line. Slovak people who do not want it think opposite to Germans that it is irrelevant information, not dangerous.

There is also a difference in comparing two visions of dealing with complex services. Germans prefer vision 2 (the less powerful personal assistant, see annex for questionnaire), because they may take over control, they have greater choice and arrange appointments themselves. From their point of view personal assistant is not attractive solution. Polish and Slovak people prefer a more powerful and intelligent personal assistant (vision 1, see annex for questionnaire) what suggest they won't mind giving more tasks to automation.

Considering likelihood of scenarios Germans are definitely more sceptic than Poles and Slovakian in case of personal assistant. Most of them think it is not likely scenario, because of lack of experience in semantic area, too complicated technology aspects etc. Poles and Slovakian think both first and second scenarios are likely. In the opinion of German respondents definitely more probable is vision 2.

Installing extra software for personal assistant is problematic for most of Germans, because they are afraid of unknown software and its safety. Some of them also suggest that administration should be responsible for such additional software. Most of Poles do not mind

installing such software, these who do not want it have the same reasons as Germans. Half of Slovak people want to install and half of them do not.

Most of all users see Interactive Voice Support as most difficult way of search support. As reasons they mention lack of technical equipment. They also mention Graphically Enhanced Interfaces as problematic and traditional search engine.

Information Provider Perspective

All Germans are strongly or partly related to that perspective, all Poles who answered the questions are also partly or strongly related to and Slovaks who answered are partly related, what means that answers connected to that perspective are quite reliable ones.

Making information accessible on communal web pages for information sharing is very important and desirable issue for most of questioned users from all countries. They mention benefits in data integration, greater access to updated information, easier data searching and possibility of Semantic Web development and implementation.

Most Slovak users believe their administration management would support semantic data sharing. Poles and Germans are not convinced of that fact; they feel concerned about high costs, too small benefits on communal level and too little awareness of benefits of Semantic Web.

In creating automated annotations of web sites content, users mention few obstacles that may occur. The most often pointed ones are selecting the content, privacy issues and problems that it will be a new, possibly additional task for administration personnel who have to understand and learn new methods first. There may also occur a need of installation of new tools supporting that process.

In the area of preparing information for automated information sharing there are as many suggestions as many questioned users. Some of them they mention are for example different types of documents, on-line forms, administration people to contact, public announcements, addresses, services realised by particular departments of the offices, open hours of offices, financial issues and licences. There follows conclusion that the best solution from user's point of view would be preparing as many content as possible to automated information sharing.

Most users from all countries think they could add semantic annotations to web content using special templates and editing them with software tools they have. The rest believes it is possible after software integration.

Most users prefer creating and editing templates themselves to relying on experts. They want to have control of that issue, consider specific requirements and pieces of information. Rest of them would like to get help from experts or at least consult them.

Adding new web pages using tools at current work places of questioned users is a possible activity and most of them do not see any problems in this context.

About half of users do not think they are able to provide and create additional meta-data. As reasons they mention missing responsibility and lack of appropriate software and mechanisms. But there are users who believe it is possible right now.

IT Infrastructure Provider Perspective

Most users who gave answers to questions related to that perspective are strongly related to it and in most cases only they answered the questions. The only one problem is that there are only few of them.

According to data sharing and “responsibility finder” most users from all countries think that parties involved in such process have capacity to face this challenge. The users do not mention any software problems.

About half of users think that creating semantic annotations of the web content is a possible task using current infrastructure. Rest of them think it is impossible. Mostly they do not give any important reasons.

Only few users believe they would be able to enhance existing infrastructure in order to support semantic annotation process. Most of them think it is very difficult task requiring better knowledge of the system and there are also people who do not know too much in that topic.

In case of importing predefined catalogues of forms (e.g. ontologies) most of German and Polish users (there was no Slovakian answers in this perspective) say their current infrastructure does not support such a process. Some of them do not give the answer because they do not know.

In the opinion of most users current infrastructure does not support creating detailed annotations for single pieces of information. Some users think it is possible for whole web pages.

In case of enhancing infrastructure to enable to create detailed annotations for single pieces of information most users do not give any answers because they do not know it, few Poles think there are needed CMS modification and creating appropriate mechanisms allowing modification of existing system.

German users have some doubts in creating such innovative systems. They are afraid of taking into consideration only people who have access to Internet and there are many of them who do not have it and prefer traditional ways of dealing with administration services.

Key conclusions

There is still high doubt in need for semantic web in public administration. It is a significant risk in supporting operational and political support for that project. This issue should be taken seriously into account and addressed by showing public administration where the value-added lies (cost/benefit analysis based not only on qualitative measures should be also considered).

There is very high amount of concern regarding security and privacy issues which influence many other positions of questioned users (especially German ones). Concern about use of personal data in context of technical and semantic interoperability seems to affect issues related to automation of processes, integration of data from different sources, installing additional software on computers of end users. This also affects selection of vision 2 (less automation) which is strong in German questionnaires. As semantic interoperability is a priority for the Project these concerns should be addressed with highest dedication, but with no forgetting about strategic eGovernment priorities expressed many times by EC.

No doubt that public entities use CMS software. Anyway as we should consider not only public entities involved in the project but public administration in Europe as a whole, we should take into account models where Access-eGov software is replacing current tools as well as the cases where some types of CMS are supported by Access-eGov in a way giving the opportunity for semantic annotation. Of course it is related to business models and technical limitations.

The important conclusion is that semantic annotation should be performed in user-friendly way what should ensure civil servants (not technical experts) to perform these tasks.

Interesting conclusion could be derived from some answers related to semantic model. It seems that the users prefer to have top-down than bottom-up approach and they see the reason for

using agreed model than to map concepts and individuals between the models (perhaps it is streaming in from the lack of knowledge about technical opportunities).

Other important conclusion is that semantic technologies seems to be perceived as highly innovative and complicated and therefore hard to realise in real environment. The consortium should take this issue into account and show to users as much technical and organization feasibility as possible perhaps using examples from other IST projects and other initiatives.

2.2.2 Interview Analysis

In this section we present summaries of the interviews. The section is divided into three subsections, one for each of the perspectives. Interviewees had identified themselves as belonging to one perspective. However, most also put forward answers for other perspectives. In each subsection only those aspects are mentioned that are new, i. e. that have not been mentioned in a previous subsection.

Information Consumer Perspective

The general attitude of the interviewees is positive towards the visions presented in the activity scenarios and the questionnaires. They expect the future system to make their lives easier when having to interact with the authorities: The future system is expected to present complicated issues and procedures in a comprehensive way. Information consumers prefer to have a “one-stop-shop” where they can get all necessary information and also perform the tasks they need to complete. However, the system must be able to adapt to the needs of the user offering a personally tailored experience.

Privacy is a concern for all interviewees. They want to be sure that only the personal information that is really needed for a certain task is collected, and that their personal information is kept safe. The interviewees tend to trust public administrations more than they trust commercial companies when it comes to personal information. For example, one of them suggests that a single, well trusted public administration should be the one responsible for running the system. This may ensure that users perceive the system to be “trustful”. Technically, all interviewees expect a certain level of security both for information transfer and storage. Additionally, it was suggested that the system should still be able to provide useful information even if one does not want to supply any personal information.

The personal assistant is expected to be useful as guide through tasks that a citizen or business employee has to perform. It should offer guidance and online help in an easily understandable way. If it is able to perform tasks automatically, users want to be in control of what the personal assistant should do or not. For example, instead of automatically scheduling an appointment it should first make a suggestion and let the user confirm or dismiss it.

Installing extra software to run the personal assistant is a problem for some but not for others. One person states that he would not like to install extra software but would not object to installing a web-browser plug-in.

Information Provider Perspective

The general attitude of information providers towards the visions presented in the activity scenarios and questionnaires is mixed. All of them see the chance to improve the citizen’s and businesses’ experience when having to deal with public authorities, but they also see a number of problems. The positive aspects for citizens and businesses have already been treated in the last section, which is why they are not repeated here.

A problem mentioned by many interviewees is the problem of cost and effort that has to be put into a system like Access-eGov. Depending on the country administrations suffer a lack of money, personnel, expertise or computer equipment and internet access. Small administrations

generally seem to suffer more from these limitations. Information providers are reluctant to put extra work into an information sharing effort. However, they are willing to do so if the new tasks are seamlessly integrated into their current work practice and tools, and if the new tasks are kept to a minimum.

In case a larger administration (for example a state government) has an interest in smaller administration to join an information sharing effort such as Access-eGov, a solution suggested is to provide a “packaged” solution to small administrations, consisting of expertise, training, and support. This is known to have worked for a regional portal that one of the interviewees works for.

Another suggested benefit for small administrations might be that they get to use ready-made description for services. This would save them some work and ensure good quality of service descriptions.

Those information providers who are not web editors prefer to leave the process of annotating information to technical experts. Information providers who already publish content themselves (e. g. web editors) want to control the annotation process as described in the annotation activity scenario. They expect that the annotation tools will be easy to use and fast. If the annotation process is very time-consuming, people will not be encouraged to do it. Reasons include: no apparent benefit, shortage of staff, and no perceptible disadvantage in neglecting to maintain it.

One problem that is stated by many information providers is the problem of how the information and processes related to a service can be adequately described and represented for the purpose of information sharing within Access-eGov. The perceived problem is that administrations do not have ready-made descriptions of processes and information; processes are often very complicated with many case-based differences which are too complicated to be comprehensively described. To make things worse, different people from the same administration may even do things differently. This is even more the case for people from different administrations. It is seen as a major problem on the way to information sharing. Change of legal regulations and organizational reforms add to this problem. It is therefore expected that Access-eGov must be flexible to accommodate for all of these different points of views and changes over time.

A similar problem is stated with regard to the process of annotation. Here, differing points of view from different employees are expected to lead to unusable annotations that can only be understood by the person who annotated the information. The interviewees expect support for this from Access-eGov, i. e. tools that ensure consistent mark-up as well as guidelines how mark-up can be consistently applied. They also expect that they will receive training.

The annotation tools and ontologies should support the user (the editor) but they should also leave a large degree of freedom to the user. For example, structural specifications of content (e. g. due to predefined fields) can easily cause problems as all the specialist areas have to deal with very heterogeneous information. Editors easily feel restricted by such strict specifications.

The templates that were mentioned in the annotation activity scenario were commented by some of the interviewees. They expressed the opinion that templates can be helpful to support a uniform way of annotating resources. However, they do not want these templates to be provided to them because such predefined templates will not suit their specific needs.

Many concerns are related to legal issues, for example: From the experience of a regional portal, the concern was expressed that if an administration grants access to a service via Access-eGov, how they (the administration) can ensure that the service can be fulfilled by all who have access to it. For example, some services only apply to citizens of a single city. A suggested solution is that such a service should be clearly marked as being only locally available. In addition there are legal considerations as to who is to be responsible for jointly

utilised content. The solution used in the portal is that for all information there is a unique “sender”—like an author—, which is the name of the authority’s body responsible for the information. Many administration employees also perceive on-line information as being less reliable than paper based information.

For the migration of the existing infrastructure to Access-eGov most interviewees expressed a need for help. This is generally expected to come from partners during the course of the project. However, the concern was also expressed who will be able to offer support besides Access-eGov partners, especially after the end of the project.

IT Infrastructure Provider Perspective

Access-eGov is perceived as a critical mass system, i. e. it will only be successful if a sufficient number of people are willing to annotate their content, and people are only willing to do so, if there are many others doing the same.

Portals for citizen’s and business often suffer from an “information overflow” because they serve the purpose of the municipality and the organisation. If Access-eGov offers content to portal operators there is a chance that some operators will simply use everything without considering the usefulness for citizens and business.

For a commercial company it might be a problem if content is fully annotated. This would enable competitors to easily import the content into their own software systems and easily make money with the effort put forward by others. A solution could either be to somehow protect the content and annotation from unauthorized access, or the company would have to look for other opportunities to ensure continued loyalty of their costumers, for example, by selling services not software systems.

2.2.3 Round Table Analysis

Each user partner was supplied with the same list of questions (including some additional questions relating to each scenario; see appendix) which was put forward by the developers. According to the local needs of the user partners the round tables focused on different issues related to these questions. The round tables in Slovakia and Poland focused on details of the future systems and pilots as envisioned in the respective activity scenarios.

In particular, the Slovakian round table discussed general expectations of user partners towards the Access-eGov system like high degree of flexibility to accommodate for frequent changes of legislation. In addition, specifics of the process of obtaining a building permission were also discussed. The user and developing partners identified three processes that should be supported by the Slovakian pilot: land-use planning proceeding, building proceeding, and house inspection proceeding.

The Polish round table provided details about existing information resources related to the process of establishing an enterprise, like details on how the process of establishing an enterprise commences, information about the Polish civil registry number and system (PESEL) etc.

The first German round table focused on technical and organizational preconditions and necessary background information for the developers. For example, the developing partners were introduced to existing legacy systems like an existing directory of public administration authorities; the user partners were introduced to important aspects of the proposed platform architecture. As a follow-up activity a check list as a basis for a marriage process model was elaborated (see appendix).

The second round table in Germany focused on interoperability. Participants came from municipalities and their IT vendors. A goal of the round table was to establish an independent

communication channel to the municipalities without having to rely on SHG as a mediator. This was important because the municipalities have a strong feeling of independence from the state government (i. e. SHG). The municipalities and vendors were chosen because they are already running a sophisticated web portal on a local level. It was important to include the IT vendors in the round table because they see their business case threatened by Access-eGov's goal of annotating content for information sharing. As a result Access-eGov (GUC) and the other participants plan to cooperate on the common issue of defining a Schleswig-Holstein-wide standard for exchange of administrative information. To this end, Access-eGov will participate in a working group that gathers the most active municipalities and their IT service providers.

The final workshop in Krakow focused on the results of requirement analysis and the strategy for trials and their evaluation. The participants discussed issues such as added value for citizens and businesses, process support for administrations, and effort saving for administrations. User partners expressed their concerns for the following topics (sorted by priority): 1. top level management support, 2. agreements and shared models for data and information, 3. cooperation of administrations involved, and 4. incentives for administrations to enter the Semantic Web.

Accessibility round table

e-ISOTIS organised a focus group meeting at the Special High School and Lyceum of Athens, with attendees representing a wide variety of disabilities: ranging from mobility, to hearing and vision impairments.

The interviews took place in the form of an interactive discussion session whereby Access-eGov was presented, as well as a number of scenarios. Most time was taken for an open discussion on eGov services, and what potential benefits the attendees envisioned this would offer them.

General findings

eGovernment overall is rather limited in Greece (see also the attached analysis of the eGov services currently available in Greece), and as an immediate result, people are overall quite sceptic about such initiatives. However, the common feeling was that eGovernment and its solutions should benefit them a lot, especially then in avoiding going from one service to another physically, especially since most of these services are housed in public buildings which are not accessible, not even the ground floor (despite the provision of a special law that forces all public buildings to be accessible). As an immediate result, many transactions are sometimes handled on the street by civil servants that come out of the buildings e.g. to put stamps on forms.

With regards to the specific elements for information consumers that need to be addressed, following elements address the various categories that were set forward in the interview template.

Accessibility

- An e-government website has to be fully accessible, and respect the Web Content Accessibility Guidelines 1.0. Where possible, not only the technical and functional accessibility should be addressed, but also content wise.

User identification

- A central point of entrance should be provided, which centralises all links and eGov services.
- Central profile storage should be enabled, however only the information needed for specific services should be made available to the service provided. As such a cross database if

available should only release specific information that is required to offer a specific service to citizens. E.g. medical information should not be shared with tax authorities.

- Logging on to the services should be secure, while avoid other parties access to submitted data.
- Among the interviewees, there is however a “big brother is watching you” feeling and they expressed concerns about the privacy issues.

Life event support

- Most wanted services were:
 - Possibility to download forms online, and print them out, or where possible submit them online, but ensuring that the state knows who has submitted them (so clear identity, and connected with security to ensure no data can be altered or submitted by a third unauthorised party).
 - Ensure that online a correct order of the document flow is ensured since currently one is send from one service to another, from one floor to another, from one building to another, or even from one area to another, often also without proper reasons, and without a guarantee that this will result in solving the specific issue that is being addressed. Most citizens do not know nor are able to find out what the exact workflow between all these services is, while an explanation is not available.
 - Clear explanation online what the rights are from citizens in any offline “operation” with the public administrations.
- Preferences go to fully automated system, however where this is not possible, citizens should be explained what the specific workflow is, where the information or paper work should be brought to and who will select what.
- Convenience aspects should not jeopardise privacy issues.

Evoking services

- Currently, many public services are only open during the forenoon. However, as a person with a disability, Greek public services tend to help you immediately. Nevertheless however, the opening hours make it difficult. In that respect, a 24/7 availability is applauded.

Comments on the scenarios

- With respect to the building permission, the question was raised whether any building accessibility guidelines must be considered as well in this process. Is there an available services that could be incorporated to e.g. ensure that public buildings, or private buildings that will house shops or cafes following accessibility guidelines. This step was missing in the scenarios so far.
 - Forms that are being used in the different steps should be automatically completed with information available in the cross databases, avoiding duplication of entries.
- With regards to the marriage scenario, the issue was raised on how an accessible place could be booked for the wedding ceremony? Is this considered in the respective countries where such scenario would be deployed?
- With regards to the web site annotation, it was recommended to apply the technological, functional and content accessibility guidelines.

2.3 Input from State-of-the-Art-Analysis

Researching e-Government landscapes in 14 countries from all over the world, the State-of-the-art-Analysis (D2.1) has highlighted a set of criteria to gain an overview of existing state-of-the-

art solutions. This section summarizes the these general e-government requirements as they will be used as a common basis for structuring Access-eGov requirements from the information consumer perspective in section 3.3.1 (for this reason the criteria standardization/uniqueness of solutions, usage guides, Web Services/XML-based middleware are not imported from D 2.1 because they focus rather on the information provider perspective; instead the criteria information quality has been added).

Requirement category	Requirement description
1. Accessibility (general)	Single-point-of-entry Portal (Gateway) (One-Stop-Shop-) Portal Web-based Catalogues (Yellow Pages) Stand-alone
2. Accessibility for impaired citizens	according to W3C-guidelines like WAI (see "Web Accessibility check list")
3. Multi channel support	(One-Stop-)Call-Centre, Shop Front, Kiosk, Mobile, SMS, Email
4. Support for Authentication and Authorization Infrastructure functionality	Certificates (soft solution), Smart-cards including certificates (hard solution)
5. Search facilities	built-in (local & on-board) Portal database (including metadata)
6. Openness to external partners	e.g. ID-management open to private partner organizations (banks), other agencies, other states or world-wide via Internet
7. Quality of service	forms-download online fill-in electronic payment, (partial) shop front substitution
8. User support	On-board-help (at stand-alone applications) Hotline (Call-Centre) Online-help
9. Information Quality	Reliability, Trustworthiness, Timeliness

2.4 Summary of Requirements for Developers

This section provides a summary of requirements based on the analysis of the results of the previous section. The summary is prepared with the aim that it can be used by developers to create systems specifications. It is inherent to requirement analysis that the existing gap between users and developers has to be closed by the system analysts. Therefore the following subsections present findings that are based on the requirement elicitation and the vision of the future system. These findings had been reviewed by all partners but some results should still be considered as tentative calling for an iterative approach, e.g. through additional scenarios, prototyping, pilot evaluation etc. Therefore some subsequent tasks will continue selected parts of analysis (as it is recommended in iterative systems development). This kind of continuation has been planned for e.g. in tasks 4.4, 5.4, 7.2 and 8.3.

The requirements to be taken into account by developers are presented in table form. The structure of the tables has been given to the liaison partners of the user partners with the task to fill the table based on the gathered material and to check with the user partners for correctness. The first two following subsections rap up the requirements from the information consumer perspective: section 3.3.1 presents requirements according to the general e-government criteria listed above, and section 3.3.2 summarizes additional requirements focussing on specific aspects of finding and combining administrative services. Section 3.3.3 list those requirements

that highlight the support needed from the administrations' point of view; however, requirement analysis from the information provider perspective will be continued during the development of methods and guidelines for semantic mark-up of e-government resources (task 7.2). All tables list the requirement category, the specific requirement (including number), the priority given within the project, the originator of the requirements as well as comments. Priorities had to be chosen among essential (E), desirable (D), and optional (O). If the same requirement was mentioned by different originators (i.e. user partners), the highest priority was included in the summary. For all comments the origin (user partner) is mentioned.

2.4.1 General E-Government Requirements (Information Consumer Perspective)

Requirement category	Req. #	Requirement	Priority	Originator	Comments
1.1 Accessibility (general)	1.1.1	Access to services of Access-eGov is enabled through a single point of entry.	E	All	GLI: It could be simply a link on the Gliwice website to separate user interface of the Access-eGov Personal Assistant. In any case the Personal Assistant should also have an independent URL, easy to remember for those users who are interested only in Personal Assistant, i. e. frequent visitors.
	1.1.2	The single point of entry is accessible from <ul style="list-style-type: none"> – the web site of the municipality as service provider – the web site of any participating administration – the web site of region / country / etc. – popular internet search engines 	E	All	SHG: According to “1. Accessibility” access should be possible from different web sites. Additionally, the appearance (layout) should be adaptable to the layout of each of these web sites.
1.2 Accessibility for impaired citizens according to W3C-guidelines like WAI (see "Web Accessibility check list")	1.2.1	Access-eGov Personal Assistant adheres to WAI specification.	E	All	
	1.2.2	Accessibility according to German law (“BITV”), which is based on the WAI criteria.	E	SHG	SHG’s web pages are required to achieve a minimum of 96 points in the BIK-test (cf. www.bik-online.info).
1.3 Multi channel support	1.3.1	Access-eGov is accessible from an Internet kiosk. (Will be installed by user partner.)	D	MI/KSR	
	1.3.2	Personal assistant sends email and SMS messages in addition to the main web based communication interface.	D	GLI, SHG	
1.4 Support for Authentication and Authorization Infrastructure functionality	1.4.1	Technical solution regarding to security will be prepared in way that ensures accessibility also from public access points (internet cafes etc)	D	MI/KSR	To ensure accessibility from public access points there must be no additional software installation required.

	1.4.2	Secure authentication and authorization based on a fully qualified electronic signature is available for transactional operations (e. g. invoking services, filling in electronic forms).	E	GLI, SHG	GLI: There are expectations about changing the law about electronic signature to extend the use of not qualified form of signature to some public services. As the Personal Assistant is expected to provide also the tools for transactional operations like triggering the public services it will need be in line with Polish law and implement appropriate mechanisms for identification and authentication.
1.5 Search facilities	1.5.1	Search for basic information about administrations (e. g. opening hours).	D	MI/KSR, SHG	
	1.5.2	Search for additional information that is available from different sources and different locations about the particular topic related to the service and / or to its particular step.	E	GLI, SHG	GLI: There are some databases of local legal acts which seem to be useful in such a context. The database is used by the CMS of Gliwice's website. SHG: The Access-eGov search facility should be (able to be) integrated into the search of an administration's web site. An administration should also be able to limit the scope of the search to a subset of available information. For example, when a user visits the SH-portal looking for services with regard to "marriage" in his or her region, he / she should be able to use the portal's regular search facility and still get search results by Access-eGov (as well as local results). Because users expect results from the SH-region, the administration will need to be able to limit the search results to those that are relevant for SH. SHG currently uses a Google Box for the local search facility of Schleswig-Holstein.de.
1.6 Openness to external partners	1.6.1	Payment for services is possible in cooperation with banks.	D	MI/KSR	

	1.6.2	External partners may participate in the service processes: XML based interface is available, including exchange of user information if user permits.	E	MI/KSR, GLI, SHG	<p>MI/KSR: Other building administrations should be able to join services very easily.</p> <p>SHG: For example, in the marriage scenario the user may have to apply for documents at administrations outside of SH (which are therefore also regarded as external). If this administration offers online services, then it should be possible for the user to allow Access-eGov to forward all necessary information to the administration and apply for the document using Access-eGov. Also, it should be possible to include information on services from external partners. For example, in the marriage scenario the user may also be interested in information about available hotels in the region. Access-eGov could offer a list of hotels in the region or a link to a hotel-reservation web site.</p>
1.7 Quality of service	1.7.1	Links to necessary forms and download are provided.	E	All	
	1.7.2	Forms are automatically filled in with available information related to particular steps in the service.	E	GLI, SHG	<p>SHG: For example, in the marriage scenario when the user is asked for her location and she provides this piece of information, the system should be able to use this information throughout the session without the user needing to provide it again.</p>
	1.7.3	Forms are automatically filled in with available information from legacy systems.	D	GLI, SHG	
	1.7.4	Electronic payment is supported (see also 1.6.1)	D	GLI	<p>GLI: There are steps in the procedures handled by Access-eGov where payment of fiscal duty is obligatory. If it could be also supported by Access-eGov platform it will be very useful.</p> <p>SHG: Electronic payment of fees for government services is currently being prepared in Schleswig-Holstein.</p>

1.8 User support	1.8.1	Online help (assistant) is available.	E	All	SHG: For example, in the marriage scenario, if The user does not know how to find the appropriate service she should be provided useful information about how to find a service.
	1.8.2.	Interactive help desk is available.	D	GLI	The Personal Assistant should be equipped with appropriate helpdesk information supporting in use of Personal Assistant as well as the mechanism dedicated for user in order to provide him with the opportunity suggest changes, comment or complain about Personal Assistant performance.
1.9 Information Quality	1.9.1	All Access-eGov components provide reliable, trustworthy, and timely information (service providers are responsible).	E	All	MI/KSR: System should also provide help to service providers to work easily and more effective so it will be necessary also for them to keep system and all information updated.
	1.9.2	Users are able to identify the degree of each of these criteria (reliable, trustworthy, and timely) for themselves by means provided by Access-eGov.	E	SHG	<p>SHG: In the marriage scenario:</p> <ul style="list-style-type: none"> – The user expects that the contact details of the administration (telephone number, opening hours) are up-to-date. The system shows a time-stamp of when the information was last changed. – The user also expects that the information is correct in the sense that it is actually possible to perform weddings in the light house. The system shows that the information has been verified by a member of the administration. <p>The user also expects a certain time-to-response when writing an email to ask for an appointment. The system shows a guaranteed time-to-response of 24 hours on weekdays (including some proof for this information).</p>

2.4.2 Access-eGov-Specific Requirements (Information Consumer Perspective)

	Req. #	Requirement	Access-eGov Priority	Originator	Comments
2.1 Multi-Lingual Support	2.1.1	Multi-lingual support for general introduction of services.	E	SHG	SHG: To fulfil the requirements of the new EU service directive multi-language support needs to be available for information about services (description of service).
	2.1.2	Services can be used by English speaking person (including forms and service interfaces / transaction guide).	O	GLI	GLI: It seems to be useful to provide the opportunity for foreign potential investors to register their business activity in Poland with help of Personal Assistant. Anyway this requirement can't be perceived as essential as the number of foreign investors doesn't exceed few dozen per year. If the support for foreign users should be useful it has to cover at least all information about the services and all their steps. As the transactional operations related to foreign users could be very difficult in context of authentication, it seems that the foreign investors will have to authenticate themselves personally in the appropriate office. MI/KSR: All documents and application forms must be submitted in national language
2.2 Identification of user task	2.2.1	For a given service (e. g. building permission, establishing an enterprise) user is directed through web site or personal contact by officer (the task is defined by the administration.)	D	MI/KSR	MI/KSR: System will be also used for publishing some obligatory information by the administration.
	2.2.2	User finds step-by-step description of all business processes related to selected services	E	GLI	

	2.2.3	The user (a) enters a “search term” which will be resolved to either a life-event, a set of services or a single service by the system or (b) the user selects a task from a predefined set.	E	SHG	SHG: For example, in the Marriage scenario The user enters the term “marry” and is presented with a list of tasks that have to do with marrying in some way. She then selects the tasks she wants to perform from this list.
2.3 Semantic search of relevant e-Government services	2.3.1	Access-eGov components search for all relevant services and information, based on the identified task, which the user wants to perform.	E	All	<p>SHG: For example, in the Marriage scenario The user selects the task “Marrying a foreign citizen”. The system then presents her with information about the services that are related to this task: legal requirements, required documents, contact information of the responsible administration etc.</p> <p>GLI: The goal /need of the user of Personal Assistant can be fulfilled by few services in which some of them the user may be not aware of (the user may be not aware that to run the type of business he/she tends to do the additional license is needed).</p> <p>MI/KSR: There is no such possibility in Slovakia at present – except real estate register, which is not usable at present – probably it will be available by the end of the project.</p>

<p>2.4 Life event support / personalised composition of e-government services</p>	<p>2.4.1</p>	<p>According to information provided by the user Access-eGov will generate a life / business event scenario.</p>	<p>E</p>	<p>All</p>	<p>MI/KSR: If the place is in an area without prepared land use plan then system will support user to go through the procedures, respectively. If a land use plan exists the system will offer to go directly to the building proceedings. The whole life event ends by issuing of building inspection permit (also supported by the system).</p> <p>GLI: It means that in some cases additional questions related to the life event /business episode will have to be raised in order to get appropriate course of actions. Besides answers from users probably the need for access to legacy systems storing personal data about the user is expected.</p> <p>SHG: A general definition of a specific life-event must be accompanied by case-based specializations. In the case of marriage, the foreign citizenship should “trigger” the case-based specialization.</p>
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<p>2.5 Virtual personal assistant acting as a guide through user scenario</p>	<p>2.5.1</p>	<p>The Personal Assistant works as a personalised system i. e. it should analyse the information collected from the particular user in order to provide personalised information:</p> <ul style="list-style-type: none"> - User is asked to provide all necessary information about his/her life event to the system, which will be able to create scenario (iterations are possible). - User is asked also by the system to submit necessary documents or application forms throughout whole process. - Assistant guides the user through the sequence of steps to be taken, offers a personalized "workflow" like a dynamic to-do-list for the user - legal basis for this step should be indicated 	<p>E</p>	<p>All</p>	<p>MI/KSR: For all needed (or possible) application forms and documents there will exist template which will be ready for download in the system – in some cases there will be also possibility to submit these documents by the e-mail. Some parts of the application forms can be partly filled by the system according to the information provided by the user by registration. System will also inform the user which documents must be provided to the building administration to successfully finish the whole process. System will offer information where to go to get these documents what are the opening hours, responsible persons or what should have user with him when visiting particular office. System will also inform the user whether the particular public service is reachable in traditional way or electronically.</p> <p>GLI: Access to the information about similar experiences from other users.</p> <p>SHG: For example, in the Marriage scenario the user may subsequently supply more information about her and the future husband. When the user enters the information that the future husband is a foreign citizen from Slovakia, the system dynamically changes the list of things that the user needs to do in order to marry a Slovakian citizen. Also, the user will want to monitor why the personalized to-do list changes when she entered the information about her future husband's citizenship. The user may also want to manually change the personalized to-do list, for example, by changing the order or marking certain items completed, postponed etc.</p>
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	2.5.2	The assistant is controlled by the user, i. e. it does not act on its own except when instructed to do so.	E	SHG	SHG: For example, the assistant should not autonomously negotiate and schedule a meeting with the administration. It should instead ask the user if she wants an appointment and then make a suggestion for an appointment. Only after the user confirms this, the assistant should schedule the appointment.
2.6 Process management of complex life events and business episodes	2.6.1	The Personal Assistant supports triggering and connecting public service as far as possible: it fills in (personalized) electronic forms, invokes web services, and relates to security issues in context of need for authentication.	E	All	SHG: For example, in case of the availability of electronic services to apply for the necessary documents in the Wedding scenario, the user will want to be able to specify that after the successful application subsequent services should automatically be evoked with all necessary information (including the newly obtained document).
	2.6.2	Virtual assistant provides the user with information about the current state of the particular instances of service processes.	E	All	SHG: Status of traditional services must be included.
2.7 Security	2.7.1	Users may register with the system and / or system requires authentication.	E	All	SHG: For example, to monitor the progress of an application process the user must be identified and authenticated.
	2.7.2	Secure information exchange: e. g. user sends personal information over the internet.	E	All	MI/KSR: Users trust in e-services provided by the public administration more than the private one. Therefore it is needed to promote the system is provided by the public administration in the most trustable way.
	2.7.3	Privacy complies with German law (federal ("Bundesdatenschutzgesetz") and state ("Landesdatenschutzgesetz"))	E	SHG	

2.4.3 Administrations' Requirements (Information Provider Perspective)

	Req. #	Requirement	Access-eGov Priority	Originator	Comments
3.1 Management of Ontology-based Resources	3.1.1	Administrative service providers create, modify and maintain ontology-based resources: <ul style="list-style-type: none"> - Identify all the documents (electronic and paper) used in the process of the trial scenarios - Semantically describe public services and relevant information resources managed by the municipality. 	D	MI/KSR	<p>SHG: For example, when users want to annotate existing web pages the system has to provide an overview of existing resources and their annotation status (not annotated, outdated annotation, etc.) The system will also need to warn the user when resources were falsely annotated.</p> <p>GLI: The Access-eGov platform is expected to work on the basis of ontology semantic annotations of services selected for the pilot seems to be essential. The efficient and reliable process related to management of ontology where the services and information resources will be described must be implemented in order to preserve the coherency and timeliness of the descriptions.</p>
	3.1.2	System reminds and supports editors in keeping all information and annotations updated.	D	MI/KSR, SHG	
3.2 Semantic mark-up of eGov-services enabling semantic interoperability	3.2.1	Intuitive annotation tools are used, supporting most common document types in the organization	E	All	

	3.2.2	<p>Semantic mark-up is applied automatically as much as possible. In cases where this is not possible, annotation should be applied semi-automatically with the help of the editors (who are not technical experts) Users fully control the annotation process i. e. a manual way of annotating content is available.</p>	E	SHG	<p>SHG: The system needs to ensure that mark-up is applied syntactically correct. The system needs to ensure as far as is feasible that mark-up is applied semantically correct (detecting logical contradictions etc.). For example, the system could present the user with a suggested mark-up. The user can then make any changes (if necessary) and apply the mark-up.</p> <p>SHG: The editors work under a lot of pressure. The annotation of resources must therefore be seamlessly and efficiently integrated into their current workflow as much as possible. For example, the tools for mark-up should be integrated into their current CMS editing front-end.</p>
3.3 Semantic wrap-up of traditional government services	3.3.1	<p>Information about traditional government services is available on web pages and / or in legacy databases.</p>	E	All	<p>SHG: Information about government services is available on web pages (which need to be annotated by editors using their familiar tools as much as possible) or is partly available in a legacy database (annotation is only necessary once by creating a custom wrapper).</p> <p>GLI: The pilot should cover the public services which to some extent were already described in electronic form along with electronic forms to download. It is expected that these efforts will be reused by Access-eGov platform</p> <p>MI/KSR: Analysis of potentially needed (if any) existing services to be wrapped into the system later. Optionally wrapping up the most prospective examples (mostly used, most time consuming, etc.)</p>

3.4 Digital Rights Management for annotated content	3.4.1	Access-eGov provides a way to protect annotated content so that the content provider can restrict who is able to use the annotated content and who has only access to the content (but not the annotation).	O	SHG	<p>GLI: As all services covered by the pilot are public and in the business process there are no activities performed by commercial entities; the need for DRM in this context is not expected.</p> <p>MI/KSR: We do not expect special requirements for digital rights of the published content.</p> <p>SHG: Some information that needs to be annotated may be restricted with regard to redistribution etc. Annotating this kind of content makes it much easier for other to automatically use the content for their own purposes.</p>
3.5 Usage Guides	3.5.1	Editors have access to electronic user guide in the process of the semantic annotation of the documents and services	D	All	<p>GLI: The semantic technologies are still sophisticated for IT staff of public administration in Poland therefore appropriate trainings and usage guidelines seems to be essential in order to implement Access-eGov in real environment successfully.</p> <p>MI/KSR: Possibly needed courses on the basics of semantic annotation and semantic web (and services). Identification of the competences for the semantic annotation process (knowledge engineer vs. domain expert) is needed.</p>
	3.5.2	Administrations and service providers are provided with clear guide lines how the Access-eGov platform can be introduced, used and maintained (best practice support).	E	All	

2.5 Recommendations for Systems Development and Subsequent WPs

Based on the analysis in the last chapter we make the following recommendations for systems development. As the systems development unfolds, all parties involved should keep in mind that Access-eGov should contribute to the development of Semantic Web for e-Government (and not only to fulfilment of user partners' particular needs). A Semantic Web application has to meet the following minimal requirements (according to the organizers of the "Semantic Web Challenge", see <http://challenge.semanticweb.org>):

1. The information sources used are geographically distributed, have diverse ownerships (i.e. no control of evolution), are heterogeneous (syntactically, structurally, and semantically), and contain real world data (i.e. are more than toy examples).
2. An open world is assumed (i.e. the information is never complete).
3. The application uses (some) formal description of the meaning of the data.

With this kind of scope in mind, we give certain recommendations for the subsequent WPs by discussing the requirements that are the most important and supported by all partners as well as by listing those requirements mentioned in 3.3 that are to be taken into account within the specific WP.

Basic components for semantic mark-up (WP4)

Semantic mark-up is prerequisite for processing machine-readable representation of web-based information. The requirements listed in the table 3.3.3 have been already identified as to be addressed when developing basic components for semantic mark-up. However, the development of methods and guidelines for semantic mark-up of e-government resources (task 7.2) will provide more specific requirements (see also below), based on the activity scenario 4.

Basic components for personal assistant (WP5)

The analysis has mainly focussed on the information consumer perspective elucidating a variety of requirements. The following overarching requirements concerning usability and accessibility have been given high priority:

- Central point of entrance to Access-eGov related services for e-government users
- Website has to be fully accessible, i.e. Web Content Accessibility Guidelines 1.0 (see annex) are to be respected
- Where possible, not only the technical and functional accessibility should be addressed, but also the presentation of content

The following requirements concerning non-functional requirements have been put in the forefront:

- Logging on to the services should be secure
- Safe submission/reception of any information
- Clear explanation of process & rights of citizens in any (offline) "operation"
- Concerns about privacy must be respected

In fact, all requirements listed in the tables 3.3.1 and 3.3.2 must be addressed during systems development. As support for life events and business events is in the centre of the use cases more detailed requirements are included in the process models that specify which process steps are to be

performed by the e-government user and which steps are to be carried out by the administrations involved (see annex for process model examples).

Integration of components (WP6)

The requirements analysis has highlighted a number of issues concerning the IT infrastructure:

- Legacy systems must be respected and should be regarded as a source of valuable (if not essential) information.
- Flexibility is required in several respects:
 - User profiles may be stored with user or on central server
 - Semantic annotation may be performed by information provider or through a central service
 - Semantic annotation as primary source may be stored at information provider's site or through a virtual "central" service

From the requirements listed in the tables 3.3.1 and 3.3.2 the following must be addressed during integration of components:

Req.	Requirement
1.1.1	Access to services of Access-eGov is enabled through a single point of entry.
1.1.2	The single point of entry is accessible from <ul style="list-style-type: none"> – the web site of the municipality as service provider – the web site of any participating administration – the web site of region / country / etc. – popular internet search engines
1.3.1	Access-eGov is accessible from an Internet kiosk. (Will be installed by user partner.)
1.3.2	Personal assistant sends email and SMS messages in addition to the main web based communication interface.
1.4.1	Technical solution regarding to security will be prepared in way that ensures accessibility also from public access points (internet cafes etc)
1.4.2	Secure authentication and authorization based on a fully qualified electronic signature is available for transactional operations (e. g. invoking services, filling in electronic forms).
1.5.2	Search for additional information that is available from different sources and different locations about the particular topic related to the service and / or to its particular step.
1.6.1	Payment for services is possible in cooperation with banks.
1.6.2	External partners may participate in the service processes: XML based interface is available, including exchange of user information if user permits.
1.7.1	Links to necessary forms and download are provided.
1.7.3	Forms are automatically filled in with available information from legacy systems.
1.7.4	Electronic payment is supported (see also 1.6.1)
1.8.2.	Interactive help desk is available.
2.2.1	For a given service (e. g. building permission, establishing an enterprise) user is directed through web site or personal contact by officer (the task is defined by the administration.)
2.2.3	The user (a) enters a "search term" which will be resolved to either a life-event, a set of services or a single service by the system or (b) the user selects a task from a predefined set.
2.3.1	Access-eGov components search for all relevant services and information, based on the identified task, which the user wants to perform.
2.6.1	The Personal Assistant supports triggering and connecting public service as far as possible: it fills in (personalized) electronic forms, invokes web services, and relates to security issues in context of need for authentication.
2.6.2	Virtual assistant provides the user with information about the current state of the particular instances of service processes.

2.7.1	Users may register with the system and / or system requires authentication.
2.7.2	Secure information exchange: e. g. user sends personal information over the internet.
2.7.3	Privacy complies with German law (federal ("Bundesdatenschutzgesetz") and state ("Landesdatenschutzgesetz"))
3.1.1	Administrative service providers create, modify and maintain ontology-based resources: <ul style="list-style-type: none"> - Identify all the documents (electronic and paper) used in the process of the trial scenarios - Semantically describe public services and relevant information resources managed by the municipality.
3.1.2	System reminds and supports editors in keeping all information and annotations updated.
3.2.1	Intuitive annotation tools are used, supporting most common document types in the organization
3.2.2	Semantic mark-up is applied automatically as much as possible. In cases where this is not possible, annotation should be applied semi-automatically with the help of the editors (who are not technical experts) Users fully control the annotation process i. e. a manual way of annotating content is available.
3.3.1	Information about traditional government services is available on web pages and / or in legacy databases.
3.4.1	Access-eGov provides a way to protect annotated content so that the content provider can restrict who is able to use the annotated content and who has only access to the content (but not the annotation).

Ontology Development (WP7)

Processing machine-readable information is at the core of the Access-eGov functionality. To meet this challenge, the information to be processed must be structured transparently, i.e. it must be governed by meta-models such as ontologies. For the development (including reuse) of such ontologies, the complex administrative domain must be analyzed and certain areas of relevant information identified. From the requirement analysis so far (see especially activity scenarios) there is a need for defining the following informational elements and their relations:

- Administrative service description
- Administration description (only in simple manner)
- Legal requirements (short text)
- Forms / documents
- Representation of user case

We recommend that during ontology development (conceptualization, ontology architecture design) these concepts are addressed separately so that there will be enough flexibility to relate to any local/regional concepts and to simplify the mappings between any machine-readable representation.

From table 3.3.3 the requirements 3.5.1-2 must be addressed in this WP, i.e. providing the administrative users with guidelines how to manage ontology-based resources and an electronic user guide helping with the process of the semantic annotation of the documents and services.

3 Evaluation strategy for pilot and field test

Within the framework of development, testing and evaluation public administration authorities will closely collaborate with research partners on specification, planning, running and evaluation of trial applications. Each trial will provide a specific test-bed for the technology and methodology enabling integrated e-Government services. The pilots in Poland and Slovakia will be based on the activity scenarios “Establishing an Enterprise” and “Building Permission”, respectively. In order to test for upgrading an existing non-semantic eGovernment application to a semantic-aware version the trial in Germany is called upgrade and field test. It will be based on the activity scenarios “Marriage / Responsibility Finding” (information consumer perspective) and “Enriching Administrative Web Content” (information provider perspective). During the field test (in contrast to the pilots) Access-eGov components may potentially be used throughout the whole state of Schleswig-Holstein.

Evaluation of the pilot and field test is essential for assuring that the technical development within the project meets the needs of the user partners and eventually of the citizens and businesses as e-government users. On one hand the evaluation should be done systematically and alike for all implementations in every region. On the other hand, special characteristics (e.g. scope) and implementation challenges within each region must be taken into account. Therefore, within Access-eGov we aim at a balanced evaluation strategy that ensures comparability of pilot / field test performance without neglecting the specific local circumstances.

The evaluation strategy must define clearly the period and the kind of usage of each implementation as well as the ways how to monitor and evaluate this usage. Core elements serving as “controls” are the activity scenarios, the opinions voiced by stakeholders (via questionnaire, interviews, round tables/workshops), and the requirement summary for developers. In addition, all implementations will be tested systematically by (mainly Egyptian) users that are guided and monitored within the frame of a Semantic Web test lab provided by GUC.

3.1 Characteristics of Each Pilot and Region

The project plan allots two tasks to the performance of trials, namely task 8.2 “Trial 1 (components) and its evaluation” and task 8.3 “Trial 2 (integrated platform) and its evaluation”. The Access-eGov components will provide different functionalities. The following tentative list is a slightly adopted version of the list of functionalities taken from the technical annex of the project plan (Technical Annex, p. 39):

1. Management of ontology-based resources
2. Semantic mark-up of e-government-services enabling semantic interoperability
3. Semantic wrap-up of traditional government services
4. Life event personalised composition of e-government services
5. Semantic search of relevant (e-)government services
6. Process management and workflow (complex life events and business episodes)
7. Personalisation of workflow scenarios
8. Virtual personal assistant acting as a guide through user scenario
9. Distributed security infrastructure

For trial 1 each pilot will focus on components that provide the necessary functionality to accomplish the tasks described in their respective activity scenario (see below). The set of

components used in each pilot will partially overlap i. e. all pilots will need to employ components that provide the functionality number (6) “Process management and workflow (complex life events and business episodes)”. This results in three pilots that accommodate the local needs of the user partners. However, the pilots in trial share only few components.

For trial 2 the pilots will be extended in order for them to share a larger set of components. This is intended to test the applicability of the different Access-eGov components in an integrated, cross-border setting.

3.1.1 Trial 1: Components

The first trial is planned to take place during a five month period starting month 21 and ending month 25, including the time for preparation and subsequent evaluation. This trial is based on the activity scenarios for each region and is intended for evaluating particular components of the Access-eGov platform. The following is a tentative description of the pilots in each country.

Slovak Pilot

The Slovakia pilot will implement an e-government service for the task of obtaining a building permit as described in activity scenario 1. This pilot focuses on those Access-eGov components that are related to the following functionalities:

- Semantic wrap-up of traditional government services
- Semantic mark-up of e-government-services enabling semantic interoperability
- Process management and workflow (complex life events and business episodes)
- Virtual personal assistant acting as a guide through user scenario

Polish Pilot

The Polish pilot will implement an e-government service for the task of establishing an enterprise as described in activity scenario 2. This pilot focuses on those Access-eGov components that are related to the following functionalities:

- Semantic wrap-up of traditional government services
- Semantic mark-up of e-government-services enabling semantic interoperability
- Process management and workflow (complex life events and business episodes)
- Personalisation of workflow scenarios

German Field Test

The German field test will implement an e-government service for the task of responsibility finding in the case of marriage as described in activity scenario 3. This field test focuses on those Access-eGov components that are related to the following functionalities:

- Semantic wrap-up of traditional government services
- Semantic mark-up of e-government-services enabling semantic interoperability
- Semantic search of relevant (e-)government services
- Process management and workflow (complex life events and business episodes)
- Life event personalised composition of (e-)government services

One important challenge for the field test in SH is that the local authorities are autonomous concerning the decision if, what and how they manage their internet information. Their

contribution to Access-eGov in general and to the field test in specific is voluntary. Their motivation to contribute has been previously impaired by disappointment concerning the slow progress in building an overall “Zuständigkeitsfinder” (responsibility finder) – especially SHG did not come up to their expectations. Therefore, Access-eGov has started establishing communication channels to field test partners (i. e. local authorities) without direct involvement of SHG (see also second German round table section 2.2.3).

3.1.2 Trial 2: Integrated Platform

The second trial will take place during month 31 through month 34, including the time for preparation and subsequent evaluation. This trial will be an extended version of the first trial, offering the opportunity for a second round of testing and evaluation. It will focus on cross-country and integration aspects of the Access-eGov platform. For example, a pilot / field test from trial 1 may be enhanced to demonstrate the feasibility of the Access-eGov platform on a cross-country level by integrating resources or information from another pilot / field test. This second trial will also be used to examine how the ontologies from different countries can be semantically integrated and combined.

From the list of functionalities we expect to add components for the following functions to some or all of the pilots / field test:

- Management of ontology-based resources
- Life event personalised composition of e-government services
- Semantic search of relevant (e-)government services
- Process management and workflow (complex life events and business episodes)
- Personalisation of workflow scenarios
- Virtual personal assistant acting as a guide through user scenario
- Distributed security infrastructure

3.2 Evaluation Approach

The aim of evaluation is to ensure that the project meets the needs of both user partners and citizens. The process evaluation can be seen as three phases:

1. Preparation of trials
2. Monitoring & documentation
3. Evaluation according to specific criteria

These phases will be stepped through twice, once for each of the two trials. It should be noted however, that during the first iteration of step 1 (preparation of trials) both trials will be outlined. If necessary, the outline of trial 2 will be adjusted and changed in the second iteration.

3.2.1 Preparation of Trials

This is the first phase of the evaluation process. Here, the trials are planned and outlined based on the results of the requirement elicitation. The basis for the trials are the three scenarios from the information consumer perspective as introduced in sections 2.1.1-3. In addition to the description of the pilot themselves (cf. section 4.1 “Characteristics of each pilot and region” for a preliminary version) in this phase we also define the general setting in which the trials should take place in order to allow for meaningful evaluation.

Two important aspects of the setting are (1) the kinds of tasks that people perform when using the pilot and (2) the number of people who use the pilot (citizens and administration employees).

Ad 1): We want to evaluate how well the system meets the requirements of the user partners and citizens with respect to a certain task that they want to accomplish. The different tasks will be taken from the activity scenarios: Every pilot will have to fulfil the task of providing information through semantic mark-up. Besides this common task, every activity scenario provides a unique collection of tasks for each of the pilots / field test. For the conclusions of the evaluation to be valid we need to ensure that the tasks performed using the pilots / field test are similar to “real life” tasks that user partners and citizens want to perform. There are different ways to achieve such similarity. For example, user partners could decide that the administration employees must perform a limited number of actual tasks using the pilot / field test system. If this is not possible, another option may be to do double work: firstly, the “real life” task is performed by using today’s tools; secondly, the exact same task is performed a second time using the pilot system.

Ad 2): Two groups of people must be considered: (a) administration employees (or other people that belong to organizations that already participate in the project) and (b) citizens or employees of enterprises, which are not participating in the project.

Ad (a): It may not be possible that all administration employees will be involved in the pilot. But results of evaluation will be very limited if only a single person were to use the pilot / field test. One solution might be to find volunteer employees who are willing to participate in the pilots /field test even though this will mean extra work for them.

Ad (b): Citizens and other people from this group can be asked to participate in the pilots and field test in different ways. For the pilots, one possibility is to directly ask citizens who come to an administration if they are willing to use the pilot system. In case this is not possible (as for the field test) users could be asked online when they are visiting the administration’s web site.

Both aspects, (1) and (2), are also interconnected and we must therefore strike a balance that takes into account the user partner’s limited resources as well as the project’s need for evaluation. Considering this, we make the following suggestion:

User partners should strive to perform actual “real life” tasks with the pilot systems. Clients (citizens, etc.) should be asked—either in person or online—to participate in the evaluation and perform their tasks using the pilot. Administration employees will in turn use the pilot system to perform their part of the task. If not enough clients are willing to participate, user partners should document actual cases of the respective tasks and then perform these tasks using the pilots.

In addition to the “real life” testing, the GUC will set up a Semantic Web test lab to systematically test and challenge the pilots / field test. The tests will be performed by following different use cases which will cover a range of different roles and goals. This will also include the preparation of a test lab strategy as well as selection and training of the testers.

3.2.2 Monitoring & Documentation

Monitoring and documentation will cover three kinds of data: Technical, semantic, and pragmatic data.

Technical: This includes technical information about system performance, like time to response, the number of served requests, but also about system malfunctions and failures. Technical data should be monitored and documented using standard reporting tools if possible (web logs etc.).

Semantic: This includes information about the operation and usage of the semantic layer, i. e. what parts of an ontology was used, which ontologies were connected with each other, what kind of semantic matches were performed etc. To monitor and document this kind of information the Access-eGov framework needs to provide special monitoring options

Pragmatic: This includes information about how well the system was able to fulfil the users' requests and needs. Monitoring questions include, adequacy of the underlying information and process models. This can be monitored and documented by surveys among the pilot and field test users.

In addition, the Cairo-based test lab will focus on the semantic aspects while also examining selected pragmatic aspects. The abovementioned use cases for the test lab will be accompanied by questionnaires that the testers will answer during and after performing a use case task.

3.2.3 Evaluation According to Specific Criteria

The evaluation should lead to answers for at least the following questions:

1. Implementation of the activity scenarios

- How well (to what degree) does the Access-eGov Semantic Web technology support the tasks described in the activity scenarios?
- Did the Access-eGov technology prove useful beyond the tasks outlined in the activity scenarios?

2. Stakeholder opinions

- How well (to what degree) were the stakeholders' expectations (collected through questionnaires, interviews, and round tables / workshops) fulfilled?
- What can we learn from that for the next step?

3. Requirement fulfilment

- Does the technology fulfil the requirements that were defined during the requirements analysis?

4. Application of Semantic Web technology for e-government

- Does the technology of Access-eGov sustain and advance the vision of Access-eGov and Semantic Web for e-government in general?
- Based on the experience gained from the pilots / field test, how can we support general use of the Access-eGov technologies (methodological framework)?

The evaluation following the first trial will most importantly provide an agenda for the developers. The evaluation following the second trial will instead try to gain insights about the general applicability of the Access-eGov technology as well as input for the methodological framework. This is intended to ensure broad acceptance and application of the developed technology.

4 Appendix

This part of the deliverable 2.2 *User requirement analysis and development / test recommendations* is not released to the general public for privacy reasons.

4.1 Guidelines

4.1.1 Scenario Guide “How to Write a Scenario”

Introduction

In software development a *scenario* is a type of document that describes the *future use of the software system* from the *user’s point of view*. For the purpose of requirements analysis in the Access-eGov project we will use a certain kind of scenario called *activity scenario*.

Scenarios can serve different purposes. We will use activity scenarios in two ways: 1) as a way for developers to learn from the users what they (the users) require of the future software system, and 2) as a means of evaluating and documenting the future software system. Thus, activity scenarios should not be viewed as documents alone, but should also be understood as a *process of learning*.

Scenario Production and Use

The user representatives (primarily liaison officers for public administration) are asked to contribute the initial activity scenarios. Each scenario describes a single task and related activities that users of the future system must perform in order to complete the given task. The scenarios are then discussed with the developers. Their feedback will point to possible misunderstandings or misconceptions between the user representatives’ and the developers’ point of view. Based on this feedback the activity scenarios will be rewritten, again letting the developers give feedback afterwards.

This repeated cycle of feedback and rewriting will improve the developers understanding of the users’ requirements while giving the user representatives a chance to form an idea of the future system.

What’s in a Scenario?

Different types of scenarios differ in their level of detail and their point of view. An activity scenario is more detailed than a mere overview of the system, but it does not mention any technical details or ways of handling (i. e. user interface aspects are usually not in the foreground at this point).

An activity scenario should describe *a single task* from start to finish from *the user’s point of view* using terms from the user’s problem domain (language). This also includes an explicit description of the task’s context, i. e. how it was initiated, which documents are needed, as well as what the results are and how they may be used later.

The following guidelines may be used to guide the writing process:

- Describe a single task and its related activities from start to finish.
- Mention other tasks that are
 - inherently related and / or

- described in other activity scenarios
- State the reason for performing the task.
- State the place and time of the scenario.
- Explicitly state the names and functions of
 - the task (e.g. “to acquire a working permit for a German citizen in the city of Košice”)
 - activities (e.g. “contact the personnel department to get application form 42B/7”)
 - functional roles (e.g. “chief information editor”, “Polish citizen”)
 - places, documents, pieces of information etc. (e.g. “application form 42B/7”)
 - results (e.g. “email-address of responsible department”)
- Write everything from *a user’s point of view, using the user’s language and terms.*
- Use active verbs, as if you were actually performing the task yourself.
- Write approximately to two to five pages of text.
- Don’t hesitate to add drawings or pictures if you think they make the scenario clearer.

Cross Check for Scenario Contributors

Please use the following questions to check if your activity scenario contains all the necessary information:

- ✓ Which specific task is described? What is the name of the task?
- ✓ Which activities need to be performed to complete the task?
- ✓ Where and when do the activities take place?
- ✓ Who is responsible for performing the task and what is the name of that person’s functional role?
- ✓ Why does she perform the task? Who or what initiated the task?
- ✓ Which resources does she need to begin the task and which resources during the task?
- ✓ Which activities are supported by the future system and which activities are not supported?
- ✓ What is the result of the task? How will it be used later on?

Need Help?

For any questions or problems encountered during scenario production please contact Stefan Ukena (GUC/Hamburg office) for help. He will also contact to the scenario contributors follow up the unfolding of the scenarios. You can reach Stefan by email or Skype:

Email: stefan.ukena@informatik.uni-hamburg.de
Skype: stefan.ukena

Time Line for Access-eGov Activity Scenario Production and Use

The scenarios’ importance is reflected by the following time line for Access-eGov activity scenario production and use: the scenarios provide focal points for the requirement analysis activities, stimulate learning and common understanding among all project partners (and beyond), and provide the basis for many other development and evaluation tasks to come. Therefore, collective

diligence in scenario production and use is essential and will certainly pay off, especially ensuring that the user perspective will be considered throughout the whole project.

The time line covers the scenario life cycle within the project (and will be followed up accordingly): all major actions producing and using the scenarios are listed along with the responsible project partner and due date for finishing each action.

The user partners are asked to contribute to the initial activity scenarios (Poland: GLI+COI, Slovakia: KSR+MI, Germany: SHG), based on the following list of tasks:

1. Establishing an enterprise (GLI+COI)
2. Land-use planning (KSR+MI)
3. Responsibility finding (SHG)
4. Enriching administrative Web content (SHG + GUC)

Accessibility will be emphasized in at least one scenario, if not all (ISO).

4.1.2 Questionnaire (Guide)

Dear Respondent,

Access-eGov is a European research project that aims at increasing the accessibility of public administration services for citizens and business users by supporting the interoperability among existing electronic and “traditional” government services (see appendix 1 for project description).

You have received this questionnaire because your answers are expected to help understanding the user wants and needs regarding the new technical solutions that shall be developed within the project.

The questionnaire has four parts: the first part include a few general questions about your background, tasks and responsibilities. The other three parts each cover one *perspective*: (a) information consumer, (b) information provider, (c) IT infrastructure provider. Each perspective is explained by a short introduction referring to scenarios included in the annex – you are kindly asked to answer at least one perspective that is most familiar to you..

Answering the questionnaire should take not more than 30 minutes (or not more than 60 if you respond to more than one perspective).

Please send back the questionnaire by April 10th to our research partner:

[enter questionnaire **distributor's** name]

[and email address here]

He/she might contact you afterwards and ask if you allow holding a conversation to discuss some issues in more depth and to assure that we correctly understand your valuable contribution.

Thank you for your time and effort!

Answering the Questionnaire

Which part of the questionnaire should you answer?

After answering the general questions (part one), please indicate at the beginning of each of the following parts if the perspective indicated is strongly, partly or not at all related to your daily work (of course, if it is not related to your daily work at all, you do not need to fill out).

Purpose of this Questionnaire

Throughout the questionnaire you will find a number of visions that describe how a future e-government system might work for you. Each vision presents a possibility, and we would like to learn from you, whether you would like to see these or different visions to become reality, and what kind of obstacles you see implementing these visions. For many questions you find suggested answers in small print just to clarify the scope of the questions and stimulate your thoughts.

We Value Your Comments!

We have tried to compile a list of questions that serve the aforementioned purpose. Instead of asking a whole lot of questions, we value any additional comments that you might want to give. We have provided extra space at the end of each section for this purpose. (If the space provided is not enough, feel free to add an extra page.)

Introductory Questions

Location and Language

Because Access-eGov is a project partially funded by the EU with participants from different countries we would like to know where you live and what language you prefer.

Q: Where do you live (city, region, and country)?

A:

Q: What language or languages do you prefer when visiting web sites?

A:

Field of Work

Q: Which of the following statements describe best your employment situation and/or your concern about e-government websites? (Please check all that apply)

- I work for a public administration.
- I work for an IT vendor or IT service provider.
- I work as a web editor.
- I work as an e-government information manager.
- I work as an e-government service planner / service designer.
- I work as a web master.
- I work as an IT consultant.
- I work as an IT service provider to administration.
- I work as a member of an IT department.
- I am an e-government user as a member of a company.
- I am an e-government user as a private citizen.
- Other – please describe in one sentence who you work for and what your responsibility is:

A:

Q: If you work for a public administration, what kind of administration do you work for?

- Federal**
- State**
- Communal**
- Other administration – please specify:**

A:

Previous Experience with Government Web Sites

Q: How often have you visited e-government web sites in the past four weeks?

- Not at all**
- Less than once a week**
- Approximately once or twice per week**
- Almost every day**
- More than once a day**

Q: Which government or public administration web sites have you visited during the last couple of weeks? (If you remember the URLs, please provide them here as well.)

A: Site 1:

http://

Site 2:

http://

Site 3:

http://

Q: What is your responsibility with regard to the administration's web site (if any)?

A:

For example, you may work as an editor for the government web site of your local community.

Comments

If you have further comments explaining your background (e.g. language, location, field of work, previous internet and e-government experience) that help to contextualize your answers throughout this questionnaire, please provide them here.

Your comment:

Information Consumer Perspective

This perspective covers aspects pertaining to the consumption of information related to e-government services. The main information consumers are citizens and businesses. If you are mainly user of e-government websites or if you are concerned with providing valuable e-government services to users (e.g. as government employee – then you might answer on behalf of your “clients”), this perspective should be familiar to you.

2.0 Q: Please indicate how much you think this perspective is related to your own daily work:

- strongly related**
- partly related**
- not at all related**

For information consumers, Access-eGov will provide components that, for example, will support citizens when establishing an enterprise, that allow businesses to apply for a building permit on-line, or that guide a couple through with their marriage preparations and help to locate a place for the marriage-ceremony. For more information, please refer to the Activity Scenarios 1, 2, and 3 in the appendix.

Task Identification

Vision (Marriage-Scenario): Anna (from Germany) and Brano (from Slovakia) both live in the German state of Schleswig-Holstein. They want to get married within the next couple of weeks.

Today, Anna connects her computer to the Internet and wants to find out what their options regarding the wedding location are, and what kind of legal preparations and documents are necessary...

Q: If such a system would be in place in your community, would you want to use it? If not, why?

A:

For example, you may prefer to talk to people face-to-face.

Vision (Marriage-Scenario): Anna looks up the information using the new on-line responsibility finder of the state of Schleswig-Holstein in Germany. Anna chooses to search by provision of service and enters the term “**marry**”. The responsibility finder presents her with a number of results, including “**Marriage**”, “**Marrying a foreign citizen**”, “**Weddings next Sunday**”, etc. The results also include a number of commercial offers, like “Buy a **wedding dress on-line**” or “Book a **honey-moon trip**”.

Q: Anna is not only presented services which are provided by the public administration but also services offered by private companies (like buying a wedding dress). Do you find this idea advantageous? If not, why? What should an ideal e-government service deliver for Anna and Brano?

A:

For example, you may think that this kind of advertisement will be distracting.

User Identification

Vision (Marriage-Scenario): Each of the results includes a short explanatory sentence of the service provided. Anna chooses “Marrying a foreign citizen”.

She is now presented a short introductory description of marriage in general and the conditions for marrying a foreign citizen in particular. The description notes that for the legal act of marriage the specific foreign citizenship is important, because the regulations for EU-citizens and non-EU-citizens are different. Anna is asked to provide the citizenship of her future spouse and selects “Slovak” from the provided list.

Q: Imagine being in Anna’s place. Would you mind providing this or similar kinds of information? If you do mind, why?

A:

For example, you may not want to disclose your monthly salary because you owe the state some taxes and you feel unsure who will have access to the information you provide.

Vision (Marriage-Scenario): The information that Anna receives about marriage also includes the following paragraph:

“You have previously submitted your on-line tax form. Based on the information in your tax-form we want inform of the following fact: If you marry before the end of the year you are entitled to a tax refund of approximately 200 EUR.”

Q: Does this vision seem desirable to you? If not, why?

A:

For example, you may be afraid that the information you have provided may be used against you.

Life-Event Support

Life-events are situations in life that require a combination of several services. Below you find two alternatives for an e-government service that supports the process of “Obtaining a Building Permit” in the event of family house building.

Vision 1 (Obtaining a Building Permit): Peter wants to build a house for his family. He already has found a building site and has made a project plan. He knows that he will also need a building permit, but he does not yet know how to get one.

Peter instructs his “Personal Semantic Web Assistant” (a special software agent) to look up information on how to obtain a building permit for the planned family house. The Personal Assistant looks up this information using the data it has about Peter and data it has from the project plan. It soon presents Peter with a list of things he has to do to get a building permit. The tasks that can be completed on-line by the Personal Assistant are highlighted. Peter selects these tasks, provides the missing information, and instructs his Personal Assistant to proceed with the application.

The remaining tasks on the list can only be completed by visiting different offices. Some of these tasks also depend on other tasks to be completed first. Peter instructs his Personal Assistant to schedule the appropriate appointments with the offices. His Personal Assistant does so by contacting the office’s Software Agents. After a while Peter’s Assistant presents him with a list of appointments. Some of the appointments are tentative because they depend on other tasks to be completed first. Peter approves the appointments, trusting that the Assistant has correctly taken into account his other appointments that have a higher priority.

With the help of his Personal Assistant he is on his way to obtain a building permit.

Vision 2 (Obtaining a Building Permit): Peter wants to build a house for his family. He already has found a building site and has made a project plan. He knows that he will also need a building permit, but he does not yet know how to get one.

Peter visits the web site of his local community to look for information about obtaining a building permit. The web site presents him with a list of tasks he has to complete. To begin the application process he is requested fill out a number forms. As it turns out, much of the information can be copied & pasted from the project plan, other information he must look up in different places. After completing and submitting the on-line form, Peter is informed by the web site that he will be notified upon approval of his application. After he will receive the approval he may continue with the other tasks on the list.

Peter notices that some of the tasks require him to visit a local administration office. To speed up the application process, Peter decides to make appointments with the offices already, even though he does not have all the necessary approval documents yet. If the documents do not arrive in time he simply will reschedule the appointments. He selects each of the offices and requests an appointment by email.

By tomorrow he will have the answers from the offices and be on his way to obtaining a building permit.

Q: Which of the two visions seem more attractive to you? Why?

A:

Q: Regarding vision 1, do you think this is a likely scenario? If not, what kind of problems in realization do you foresee?

A:

Q: Regarding vision 2, do you think this is a likely scenario? If not, what kind of problems in realization do you foresee?

A:

Q: Would you be willing to install extra software on your computer in order to be able to use such a Personal Assistant? If not, why?

A:

Finding Services

Traditional government web sites usually provide a menu of items that lets you access the site's information. The information concerning location, agency, or service type is typically accessible in one or more of the following ways:

<p>1. Using a search engine</p>	<p>Using a web site's search facility you can enter a word or phrase that you want to search for. Simple search engines will only return results with exact matches, while advanced search engines may also show results based on related terms, synonyms, etc. For example, in the marriage scenario, Anna searched for the term "marry". The list of results included exact matches like "<u>Marrying</u> a foreign citizen", but also results based on related terms, like "Wedding".</p>
<p>2. Choosing from a list or tree</p>	<p>In this case the information is accessible via a menu in the form of a predefined list or a hierarchy. For example, a list with locations may contain all the states of your country.</p>
<p>3. Graphically enhanced interfaces</p>	<p>Instead of using a list of the states of your country, a web site may also present you a map where you can simply click on your part of the country, or you may be able to select a region by drawing a square around it. This is only one example of a graphically enhanced interface, which is especially suited to present geographical information.</p>
<p>4. Interactive Voice Support</p>	<p>This could be for example a computer voice interface or a human call centre agent, or a combination of both.</p>

Q: For which of the aforementioned four ways of presentation do you perceive the greatest difficulties in their usage? Why?

A:

For example, you may think that visually impaired people may have difficulties with using graphically enhanced interfaces.

Comments

If you have any further comments the future use of e-government websites in comparison to today's experience, please provide them here.

Your comments:

Information Provider Perspective

This perspective covers aspects pertaining to the provision of information on e-government services. The main information providers are administrations. If you are mainly editor of e-government websites or if you are concerned with providing content to e-government websites, this perspective should be familiar to you.

3.0 Q: Please indicate how much you think this perspective is related to your own daily work:

- strongly related**
- partly related**
- not at all related**

For information providers, Access-eGov will provide tools for conversion and annotation, i.e. adding machine-readable information to existing content on websites that can be used by computer systems to automatically process and combine the annotated information. In this section we would like to learn from you, how these tools should be shaped in order to support your work, and also what kind of problems we need to be aware of with respect to content provision. For more information, please refer to the Activity Scenario 4 in the appendix.

Project Initialization

Vision: In the summer of 2007, the city council of *Eurocity* has decided to make the information on their communal web site available for information sharing. A first application will be to make the information findable via the central responsibility finder of Schleswig-Holstein. This will also make the information available to other Semantic Web enabled applications, like the communal web site of their Polish partner-city.

Q: Does this vision seem desirable to you? Why or why not?

A:

Q: Would the management of your administration support such a development?
If not, why?

A:

Web Content Preparation

Vision: Anna is working full-time for the city of *Eurocity*. She is responsible for all matters of public relations. This also includes the responsibility for the communal web site of *Eurocity*. Following the council's decision about upgrading the web site to the Semantic Web, Anne received an introduction of how the Semantic Web works in general, and what her part will be in preparing the communal web site for it.

A number of decisions have to be made. For example, she must decide which content should be prepared for automated information sharing (including priorities). She also must decide if the content should be rephrased, rearranged, and / or enhanced in order to facilitate the annotation process. Most likely, she will have to negotiate these aspects with some of her colleagues in her own administration as well as across the region.

Q: Imagine being in Anna's place. From your experience, what will be the major obstacles fulfilling her new job?

A:

Q: Which of the existing content of your administration’s web site should be prepared for automated information sharing?

A:

For example, you may want to make available the address and responsibility of every office, or maybe online-forms or existing e-government services.

Web Content Annotation

Semantic annotation is a central aspect of the future internet: Extra machine-readable information amended to existing content on websites can be used by computer systems to automatically process and combine the annotated information. To support the process of annotation, Access-eGov will provide an annotation service web site:

Vision: Anna is working full-time for the city of *Eurocity*. She is responsible for all matters of public relations. This also includes the responsibility for the communal web site of *Eurocity*. Currently she is preparing the existing templates of the CMS for the Semantic Web.

Today she needs to semantically annotate the existing web content. The content management system of her community provides customizable patterns, so called templates, which can be used to create new content. The first thing she has to do is to change the existing templates in her CMS to include semantic annotation.

She wants to edit the template that is used for event publication, because the events of the local event calendar shall be made available to the state-wide responsibility finder of Schleswig-Holstein. The template for events contains three fields, one for the title of the event, one for the date, and one for a short description.

Anne opens the *template module* of the CMS and selects the template called “Event Publication” for editing in the template editor. The system presents her with a new prompt for a *template type*. Anne has already learned that every template of the CMS has to be assigned a special type, which must be taken from the predefined catalogue of template types. Therefore, she needs to select a predefined template type from the graphically presented catalogue.

Anna knows from the training that she also has to add another field to the template (for the event’s location). After doing so, she has to mark each field with appropriate meta-data (like indicating that date field contains date information in the format “month / day / year”). She does so by selecting each field and then assigning it a special type which she looks up in the catalogue of predefined field types. For example, the field for the event’s title is assigned the type “Title of Event”, the field with the description is assigned the type “Event Description”, and so on.

Q: Can you perform this kind of activity with the software tools at your current workplace? If not, why?

A:

For example, your current tool may not let you edit the templates in an easy way, or it may not support a template mechanism at all.

Q: In the Eurocity-vision, Anna is a web editor who is also responsible for creating and editing templates. Would you like to create or edit templates (i. e. customizable patterns, which can be used to create new content) for your website yourself or do you rather want to rely on technical experts? Why?

A:

For example, templates may be defined by members of the administration’s IT department or by external parties, like IT vendors, consultants, etc.

Publication

Vision: Today Anne needs to add a page for the local firefighters to the web site. She has already received the necessary information that she wants to put on the page by email: the firefighter chairman’s address and a short description about the local firefighters.

She starts the *content editing module* of the CMS. Here she selects to create a new page based on the template called “Online business card for communal authority”. This action opens a page editor where she can enter the information into a number of fields. She enters “Firefighters of Eurocity” into the field named “Title of authority”. She copies and pastes the rest of the information one-by-one directly from the email: first the street, then the zip-code, the name of the city, then the description (the latter to an optional field “Description”).

Q: Can you perform this kind of activity with the software tools at your current workplace? If not, why?

A:

For example, your CMS may not provide a means for structuring input, like the fields mentioned in the vision, or it may only provide a limited number of fields or kind of fields.

Vision: Although the new firefighter’s page title already contains the word “Firefighters”, Anne wants to make sure that the page can be found when searching for other related terms, like “emergencies”. She therefore assigns a keyword to the page by selecting “Firefighter” from the catalogue of predefined terms. Assigning a single keyword to the page associates the page with a number of different, but related terms. As a result, someone searching the web site for the term “emergency” will find the firefighter’s page, even though it does not contain the exact word.

Q: Can you perform this kind of activity with the software tools at your current workplace? If not, why?

A:

For example, maybe you cannot select a keyword from a defined list of keywords. Or your administration does not have a catalogue of keywords / a thesaurus. Maybe your current CMS does not support the use of a thesaurus, or maybe the search engine cannot make use of it.

Comments

If you have any further comments regarding section 3, please provide them here. In particular, which obstacles do you foresee for implementing the above vision? First think of problems you perceive for your own work, then in your department and/or beyond.

Your Comments:

IT Infrastructure Provider Perspective

This perspective covers aspects pertaining to the provision of the IT infrastructure for e-government services. The main IT infrastructure providers are IT vendors, IT service providers and the IT departments of administrations. If you are mainly working on setting up the software and other technical components supporting the creation and use of e-government websites, this perspective should be familiar to you.

4.0 Q: Please indicate how much you think this perspective is related to your own daily work:

- strongly related**
- partly related**
- not at all related**

The overall goal of Access-eGov is to enable e-government through the use of semantic technologies. For IT infrastructure providers Access-eGov will provide a number of components that facilitate business' and citizen's access to e-government services. This will include software components for software agents and for semantic annotation. Also, information will be provided on how to interface existing services and websites with the Access-eGov infrastructure.

Project Initialization

Vision: In the summer of 2007, the city council of *Eurocity* has decided to make the information on their communal web site available for information sharing. A first application will be to make the information findable via the central responsibility finder of Schleswig-Holstein. This will also make the information available to other Semantic Web enabled applications, like the communal web site of their Polish partner-city.

Q: From your experience and within your context, do you believe the parties involved in such a process have the capacity to face this challenge? If not, why?

A:

For example, there may be a lack of expertise with regard to semantic technology, or your organization may not see any added value in adopting semantic technology.

Web Content Annotation

Vision: Anna is working full-time for the city of *Eurocity*. She is responsible for all matters of public relations. This also includes the responsibility for the communal web site of *Eurocity*. Currently she is preparing the existing templates of the CMS for the Semantic Web.

Today she needs to semantically annotate the existing web content. The content management system of her community provides customizable patterns, so called templates, which can be used to create new content. The first thing she has to do is to change the existing templates in her CMS to include semantic annotation.

She wants to edit the template that is used for event publication, because the events of the local event calendar shall be made available to the state-wide responsibility finder of Schleswig-Holstein. The template for events contains three fields, one for the title of the event, one for the date, and one for a short description.

Q: Would this be possible with the existing infrastructure? If not, why?

A:

For example, the administration your support may not use a CMS or the CMS may not allow templates to be modified in an easy way.

Q: Do you think you will be able to enhance the existing infrastructure in order to support such a process (e.g. plug-ins, additional components and/or programming)? If not, why?

A:

For example, legacy systems not changeable, lack of know-how, etc.

Common Semantic Model Import or Adaptation

Anne opens the *template module* of the CMS and selects the template called “Event Publication” for editing in the template editor. The system presents her with a new prompt for a *template type*. Anne has already learned that every template of the CMS has to be assigned a special type, which must be taken from the predefined catalogue of template types. Therefore, she needs to select a predefined template type from the graphically presented catalogue.

Q: Does the current infrastructure support importing of predefined catalogues of types and terms (i.e. ontologies)? Please specify.

A:

For example, the CMS may provide built-in support for importing ontologies in RDF-S format.

Web Content Annotation

Anna knows from the training that she also has to add another field to the template (for the event’s location). After doing so, she has to mark each field with appropriate meta-data (like indicating that date field contains date information in the format “month / day / year”). She does so by selecting each field and then assigning it a special type which she looks up in the catalogue of predefined field types. For example, the field for the event’s title is assigned the type “Title of Event”, the field with the description is assigned the type “Event Description”, and so on.

Does the current infrastructure support detailed annotation for single pieces of information, as described in the vision, or only for web pages as a whole?

A:

For example, a CMS may support HTML-meta-tags for a whole page.

If the infrastructure does not support fine-grained annotation of this kind, what would be needed to enhance the infrastructure in such a way?

A:

For example, a CMS may provide a mechanism for pluggable rendering engines. Based on this a rendering engine could be developed that would automatically add annotations to every field of a template, while allowing the user to provide individual annotations as well.

Your comment

If you have any further comments regarding section 4, please provide them here. In particular, do you believe the technical infrastructure of the administration(s) you are serving can be expanded towards semantic web technology? If not, why?

Your comments:

Appendix 1: About Access-eGov

Access-eGov – a European Research Project

Access-eGov (Access to e-Government Services Employing Semantic Technologies) is an IST project partially funded under the IST Programme of FP6 (eGovernment research). A consortium consisting of eleven partners from five countries (Slovakia, Poland, Germany, Greece, and Egypt) led by the Technical University of Kosice will carry out the project between January 2006 and December 2008.

Access-eGov aims at increasing the accessibility of public administration services for citizens and business users by supporting the interoperability among existing electronic and “traditional” government services. For citizens and business users, Access-eGov will provide two basic categories of services. Firstly, Access-eGov will identify –depending on the needs and context situation (location, etc.) of the user- traditional and/or e-government services (if available) relevant to the given life event (of the given citizen) or business episode (in case of businesses). Secondly, once the relevant services have been identified, Access-eGov will generate a “scenario” consisting of elementary government services. In most cases these scenarios will be probably of a “hybrid” nature–i.e. a combination of elementary traditional and e-services- which will lead to a requested outcome (e.g. to get a building permit, register a new company, etc.). Access-eGov will also provide a virtual personal assistant, who will guide the user through the scenario (reminding him/her of deadlines, providing support information, initiating e-services, etc.).

Special attention will be paid to the e-Inclusion criteria to guarantee that Access-eGov will be accessible also to disadvantaged groups of users, for which the system can be considerably beneficial. In this respect, e-ISOTIS will bring in their (web) accessibility expertise.

Access-eGov will also provide services for the public administration, i.e. service providers, and this on all levels: local, regional, national, and European. As such it will enable the easy introduction of a (new) e-service to the world of e-government interoperability.

Three distinct pilots of the Access-eGov system will be implemented and evaluated in three EU countries. The **Slovak pilot** will be specified and implemented by the Kosice Self-Government Region and municipality of Michalovce City. This pilot will be focussed on the land-use and -planning and building permit, and aims at making this rather complicated process more transparent, efficient and easier to understand, hence saving time (and thus also money) for citizens and businesses. The **Polish pilot** will be implemented in the Silesia Region in cooperation between the Cities on Internet and City Hall of Gliwice. This pilot will focus on the registration processes of a company. The **German pilot** will be implemented by the State Government of Schleswig-Holstein, which will upgrade and field test an existing good practice, the so-called “Zustaendigkeitsfinder” (“Responsibility Finder”), by introducing a semantic layer (securing semantic interoperability between national and local governments). As a result, the quality of services to citizens and businesses will be improved when they will be looking for a service provided by national and/or local governments.

In addition, the German University in Cairo, thanks to its location in Egypt, will arrange a challenging test case: for example, a person with an Egyptian citizenship searching for e-government services or wanting to obtain a work permit in a EU country. It will include all tasks of an intra-European scenario plus additional challenges of language and cultural differences.

Note for Questionnaire Distributors and Translators

- 1) *Please remember to add your name and email address on the first page of the questionnaire (the introduction) in the space indicated.*
- 2) *Translate the questionnaire and Activity Scenarios as necessary. We recommend that you at least translate the questionnaire and provide a translated abstract of each Activity Scenario.*
- 3) *The questionnaire can be either distributed in electronic form or printed on paper. In either case the appendices (Activity Scenarios) should be included in the same format.*
- 4) *When determining the dead line for respondents to return the questionnaire, remember to plan in some time for translation of the answers to English (if applicable).*
- 5) *Be prepared to answer questions the respondents might have. If you cannot answer them yourself, feel free to contact Ralf Klischewski and Stefan Ukena at any time.*
- 6) *The completed questionnaires (written in English) need to be returned to us in electronic form by April, 7th, 2006.*
- 7) *Translators: please pay special attention to the translation of the vision under “2.2 Task Identification”. In the first vision-box, the last paragraph reads:*

Anna wants to look up this information using the new on-line responsibility finder of the state of Schleswig-Holstein in Germany. Anna chooses to search by provision of service and enters the term “**marry**”. The responsibility finder presents her with a number of results, including “**Marriage**”, “**Marrying** a foreign citizen”, “**Weddings** next Sunday”, etc. Each of the results includes a short explanatory sentence of the service provided. Anna chooses “Marrying a foreign citizen”.

One important point of this paragraph is that the term “marry” and “wedding” are semantically related while being spelled very differently. For the translation this relation should be preserved as much as possible.

4.1.3 Interview Guide

The role of interviews in the Access-eGov requirements analysis process

The requirements analysis process in Access-eGov involves four distinct measures for user requirements elicitation that are roughly carried out in the following sequence:

- 1) Activity scenarios
- 2) Questionnaires
- 3) Interviews
- 4) Workshops and round tables

As previously outlined in the requirement analysis guide “Strategy and Method of User Requirement Analysis” the interviews have the following function:⁴

Following up the questionnaires, interviews can provide missing explanations and interpretations, clarify inconsistencies as well as provide important background information. The interviews will be used to collect detailed requirements with regard to the diversity of both tasks and roles (management, technicians, etc.). More specifically, the interviews will be used to examine those aspects that have been identified from questionnaires as being important. This can be either done by asking for more details on a specific point or by pointing to inconsistencies that need clarification.

Not all who had answered the questionnaire will be interviewed. The user partners and COI together with GUC should identify prospective interview candidates. Interview candidates shall be chosen both according to their role and perspective, as well as their expertise with regard to the above mentioned aspects. [...] The interviews will be held by the user partners using an interview guide developed by the GUC. The interviews should be conducted in the form of a guided interview (cf. [1] and [2]).

The interviews are mainly carried out as follow up activities of the questionnaires. However, additional aspects should be included, which have not been addressed in previous analysis methods. The interviewees are selected from the group of questionnaire respondents based on criteria outlined below and from additional focus groups, which are expected to significantly contribute to elicitation of requirements. The topics addressed during the interviews are based on the analysis of the questionnaires, the activity scenarios and other considerations that were taken into account (see below). In addition, the interviews should cover topics that have either not been addressed in the questionnaire (like accessibility issues) or that are of relevance from a local point of view.

Choosing the interviewees

The interviewees should be chosen by the local partners. If a local partner encounters any problems or difficulties while selecting the interview partners he is welcome to ask COI or GUC for help. In any case, a list of the selected interview partners should be send to COI (with GUC as a CC-recipient). This list should include for every interviewee

- the name,
- the perspective this person is associated with (information consumer, information provider, IT provider),
- the role identified according to the dimensions presented below.

In the following section we present criteria that should be used by local partners to identify prospective interviewees.

Criteria for selecting the interviewees

Interviewees should primarily be selected based on their potential contribution to the process of user requirement analysis:

- The interviewee may contribute by providing additional insights that go beyond the topics of the questionnaire.

⁴ This quote is adjusted to reflect the new distribution of responsibility between GUC and COI.

- The interviewee provided answers in the questionnaire that were unclear or contradictory, requiring further explanation.
- The interviewee plays an important role for the realisation of the project.

Based on these criteria you should choose one or two interviewees from each perspective for a total of four to six interviewees. This ensures that the local requirements of each perspective are considered.

If you need to narrow down the number of interviewees you can use the following criteria. Try to distribute your interviewees within the following dimensions:

Information Consumer Perspective

- High vs. low experience with e-Government

Information Provider Perspective

- Primary role of interviewee: manager, editor, clerk, technician
- Administrative level the interviewee is working for: communal vs. state
- Technical infrastructure: CMS, no CMS, planning for CMS

IT Provider Perspective

- Primary role of the interviewee: manager, technician
- Size of the company: small, medium, large

Example: If you have four prospective interview candidates for the information consumer perspective you could select two of them based on the criterion of experience: one interviewee with low experience and one interviewee with high experience with e-Government.

The interview

The following description of the interviews is based on what is commonly described in the literature as *guided interviews* (see, for example, [1] and [2]). It has been adjusted to fit the purpose of the Access-eGov requirement analysis process.

The interview guide

In a guided interview the interviewee is not asked to answer questions one by one (like a questionnaire). Instead, the interviewer presents a topic and asks the interviewee to comment on this in her or his own words. There are no predefined answers to choose from and the interviewer should not pass judgment on the answers provided by the interviewee. The interviewer will make notes of the answers and use these notes to compile an interview result afterwards. If feasible the results should be later verified in a discussion with the interviewee. Based on the interview results COI will prepare a digest that will be used.

A guided interview can be seen as a mixture between a conversation and a predetermined interview as defined in this guide. This guide determines two aspects of the guided interview: a) the way the interview should be held (the process) and b) the content or topics of the interview, which may vary depending on the interviewee's perspective (consumer, provider, and IT provider perspective).

The interviewer should try to cover all the topics that are relevant for a certain perspective. This may well be done in the fashion of a conversation. The next sections describe the interview process in detail.

Before the interview

The interviews should not be a simple repetition of the questionnaires. Instead, the interviews should complement the questionnaires and focus on three aspects: 1) **attitude** of the interviewee towards the Access-eGov visions, 2) **problems** the interviewee sees for the realisation of these visions, and 3) possible **solutions** as suggested by the interviewee. In order to adequately address these issues, the interviewer needs to make himself familiar with the interviewee's answers to the questionnaire. He should also identify any answers that need clarification and note these down.

Before the actual interview the interviewer should prepare by (re)collecting some information about the interviewee:

- Who is the interviewee?
- What does she do? What is her position and role?
- Where (for whom) does she work?
- What is the perspective that this person will be interviewed for? (Information consumer, provider, or IT provider)

The interviewer also needs to study this guide and the interview topics to make himself familiar with the subject of the interview.

A few things to remember:

- Make appointments as soon as possible. Plan in enough time for the introduction and the interview itself. If you plan to interview for one hour, plan in an additional half an hour for the introduction and casual talk, making a total of one and a half hours.
- Also make an appointment for the feedback discussion of the interview summary, if you plan to do so.
- Make yourself familiar with the interview guide. You should know the topics and questions that you want to talk about. Your notes for the interview should only serve as a reminder that should not intrude too much.
- Practice to recount the visions from the questionnaires (based on the scenarios) in a few words.

Holding the interview

The interviewer shall ask open questions⁵ and let the interviewee answer at his or her own pace. An open question can sometimes lead the interviewee to not answer the original question but instead wander off to different topics. This is not necessarily bad and should not be interrupted immediately.

Ideally the interview should be conducted by two interviewers: one in the role of the person asking the questions and one in the role of the note taker. This way, the interviewer can fully concentrate on the interviewee and is not distracted by having to take notes, which may otherwise break the flow of the interview. Both interviewers can agree before the interview to switch roles during the interview. However, this should be kept to a minimum in order to minimize distraction. In case it is not possible to have interviewers with different roles, a different means of recording the answers needs to be taken. If the interviewee agrees, the interview can be recorded on tape; otherwise the interviewer has to take notes during the interview her-/himself.

The interview should cover the general themes as indicated in the matrix below:

⁵ An "open question" is a question that cannot be answered by "yes" or "no". An example of an open question: "How do you feel?" An example of a closed question: "Do you feel good?"

	<i>Organizational Aspects</i>	<i>Technical Aspects</i>
<i>Vision</i>	What do you like about the organizational aspects of the vision?	What do you like about the technical aspects of the vision?
<i>Problems</i>	What are the organizational obstacles you see on the way to realizing the vision?	What are the technical obstacles you see on the way to realizing the vision?
<i>Solutions</i>	What solutions can you suggest for the organizational obstacles?	What solutions can you suggest for the technical obstacles?

Table 2: Matrix of themes

The interview should commence as follows:

- Try to create a friendly and relaxed atmosphere by first introducing yourself(s), the goal of the project and the interview process. Let the interviewee know that there are no right or wrong answers and that you are interested in their personal opinion. Also mention that the information will be treated confidentially if they wish.
- You should first ask the interviewee what he remembers to be the most fascinating thing in the visions. For example. You may ask: **What was the most fascinating thing in the visions that were presented in the questionnaire?**
- You need to make sure that both the organizational and the technical aspects are covered. If the interviewee's answer focuses one aspect you need to later ask about the other.
- In case the interviewee cannot recall the vision, you should recount the vision in a few words. If the interviewee still cannot or does not want to answer this question, proceed.
- After hearing about the positive aspects, you should turn to any problems that the interviewee sees with the visions. For example, the second question may be: **What do you see as the biggest obstacle on the way to realizing this vision?**
- Again, if the interviewee only mentions one aspect (either organization or technical), remember to ask about the corresponding aspect.
- Having talked about the problems, you should then ask the interviewee for possible solutions for each of the obstacles. For example. you may ask: **What solution can you suggest to overcome these obstacles?**
- Again, you should make sure both organizational and technical aspects are addressed and that all mentioned obstacles are covered.

Please note: The interviewer may deviate from this interview guide if he sees the need to do so. However, any deviation should be documented in the interview summary including the reason for the change. In addition to the questions above we have provided a list of sample questions at the end of this document. Whether or not it is necessary to ask a question or go into details depends on the local conditions. If user partners see specific topics to be a dominating concern among the local parties, then these topics should be addressed during the interview.

A few things to remember:

- The interviewee is always right. Do not try to influence his or her opinion. Do not judge the answers.
- If the interviewee cannot or does not want to answer do not suggest answers.
- Use open questions that encourage the interviewee to speak freely about a subject.
- Do not immediately interrupt the interviewee if he or she wanders of to a different subject. This may provide important insights.
- If you want to return to the questions on your interview guide, do so politely to keep a friendly atmosphere.
- If you do not understand an answer, ask the interviewee for clarification. It is important that you understand what the interviewee means because you have to prepare the summary.
- Usually, an interviewee will only be interviewed with regard to one of the three perspectives. However, if an interviewee is suppose to answer for more then one perspective, he or she should first be asked with regard to the information consumer perspective, then with regard to the information provider perspective and finally with regard to the IT provider perspective.

The interview results and review

The interview summary should be prepared using the summary template provided in appendix.

Immediately following the interviews the interviewer(s) should go through the notes and add any comments that are missing. They should also prepare a short interview summary as soon as possible. This summary is the result of the interview and should be prepared no later than the day following the interview. The summary should contain all the main points of the interview and should be based on the notes taken or the taped recording.

In addition, the summary may include some information about the interview's context and atmosphere. Maybe the interviewee constantly wanted to talk about other topics than you had intended, then please make a note of this. Maybe the interviewee was getting bored at some point during the interview; this should be mentioned as well. Any information about *how* the interview proceeded should be mentioned.

If feasible the interview summary should be discussed with the interviewee no later than one week after the interview. During this review session the interviewee is given the opportunity to verify if the summary prepared by the interviewer(s) corresponds with her or his own view. If the interviewee requests changes to the summary, these changes are incorporated.

The interview notes should be kept for reference.

A few things to remember:

- Immediately after the interview you should go through the notes and make any additional comments that weren't able to add during the interview.
- Include some comments on the context, like the atmosphere, the mood of the interviewee. If something unexpected happened during the interview, mention this as well.
- Prepare the summary as soon as possible. Ideally, right after the interview, but at latest on the day following the interview.
- You should discuss the summary document with the interviewee no later than one week following the interview.
- The summary should reflect the view of the interviewee, not the view of the interviewers. Therefore, the interviewee is always right. If he or she disagrees with something in the summary you need to change it.

Sample questions

The following questions may be used by the interviewer to investigate certain topics in more detail. The interviewer may decide to ask any of these questions, for example if the appropriate subject is

mentioned by the interviewee or if user. User partners may also decide that certain questions should be asked because of specific concerns of the local parties.

Information Consumers

- **Accessibility**
 - a. What do citizens with disabilities expect from an e-government web site?
- **User identification**
 - b. How important is it for citizens to have a "single sign-on" feature?
 - c. Do citizens want a profile to be stored?
 - d. Are they concerned about privacy? What are their concerns in this respect?
- **Task identification**
 - e. What kind of tasks are citizens expecting to be supported by e-government web sites?
 - f. What information are they looking for when coming to an e-government web site?
 - g. How much support for task identification is wanted? (convenience vs. privacy concerns)
- **Life event support**
 - h. Which life events (from a given list) are important?
 - i. How much control over the process is necessary? (fully automated vs. manual)
 - j. What level of service integration is expected? (convenience vs. privacy concerns)
- **Finding (elementary) services**
 - k. How should (elementary) services be made available? (by location, agency, service type, other?)
- **Evoking services**
 - l. What information / interaction is expected about "traditional" service? (opening hours, accessible with a wheel-chair, contact details, address, email)
- **Connecting services**
 - m. Who should control the flow of data? (predetermined by administration vs. customizable by user)
 - n. What should happen in case of a conflict or problem?
- **User monitoring**
 - o. What aspects should the user be made aware of by the system? (related topics, deadline reminder, etc.)

Information Providers

- **Existing IT infrastructure**
 - What is the existing infrastructure that will (is planned to / could) be migrated to Access-eGov?
 - Software system from vendor / in-house development?
 - Is there any experience from previous upgrades?

- **Existing content**
 - What kind of existing content & services do we need to consider for Access-eGov? (I.e. what kind of content / services do they want to migrate?)
 - In what form is the content available?
 - HTML, CMS, DB, other
 - What technology is the service based on?
 - Java, PHP, CGI-script, etc.
 - Who will be responsible for migrating the content?
 - Who does actually migrate the content?
 - How much work power will be available to migrate existing content?
- **Available resources**
 - Is the public administration (PA) currently applying any kind meta-data to their content?
 - Does the PA have any meta-data-like resources (thesauri or keyword catalogues etc.) that can be (re)used by Access-eGov?
- **Technical, legal and organizational constraints**
 - Will the PA be able to provide enough resources for the migration?
 - What are the resources that will be needed?
 - Are there any laws that Access-eGov must consider? (e. g. with regard to privacy)
 - Are there any special security concerns that must be considered?
 - Does the PA have the expertise to do the migration or will they need a lot of help? From whom?
 - Are the employees willing to adopt the new technology? How do we encourage them?
 - Are they able to adopt it? How much expertise is there?
- **Support requirements**
 - What kind of support do we have to provide before and during the migration?
 - What kind of support do we need to provide after the migration?
 - What level of support is needed? (Time to response)
- **Other concerns**
 - Who is able to provide support besides Access-eGov partners?
- **Drivers and motives**
 - Which concern is important? Customer satisfaction, legal requirements, improved functionality?
 - Which concern are not important? We need to focus on the important once.

IT Infrastructure Providers

- **Migration of existing applications and infrastructure**
 - What technology is used? What technology do we need to consider?
 - What are the options for integration?
 - What are the options for annotation? (Web crawler, enriched CMS (templates), enriched DB, other?)

- How can their applications be extended? (Plug-ins, Templates, Filter, Client-side, Server-side)
 - Is there any experience with similar integration projects?
 - What were the problems there? Anything we can learn from that?
 - How complicated would the adoption be?
- **Existing information schemata**
 - How may we (Access-eGov) interface with the information in the current application?
 - Which are the information schemata that the application currently uses? (Proprietary, standard – which ones?)
 - What do the current information schemata look like? (If not standard)
 - **Commitment**
 - Under what conditions would the company adopt the technology?

4.1.4 Round Table Guide

The role of round tables in the Access-eGov requirements analysis process

The requirements analysis process in Access-eGov involves four distinct measures for user requirements elicitation that are roughly carried out in the following sequence: activity scenarios, questionnaires, interviews, workshops and round tables

As previously outlined in the requirement analysis guide “Strategy and Method of User Requirement Analysis” the round tables have the following function:⁶

Within Access-eGov, the aim of round tables and workshops is to reach a consensus among the actors involved or to clarify the different viewpoints that might lead to different (and sometimes even contradicting) requirements. Each user partner should hold round tables as necessary to support the creation and discussion of scenarios and questionnaire & interview results.

A round table should be regarded as a meeting that is only loosely structured. It is an opportunity for the participants to exchange ideas and form a common understanding. Local partners may decide to hold several round tables with different goals and different groups of participants. Here, we will focus on round tables for the specific purpose of answering the developers’ questions.

Based on the scenarios, which have been created in the beginning of the user requirements process, the Access-eGov developers have prepared a list of question. This list can be found in the document “Additional Questions of Developers (TUK) to the Scenarios”. The questions reflect on specific details of the scenarios from the developers’ point of view. The answers are needed so that the developers’ may better understand the technical implications and possible implementations of the scenarios.

Answering all the questions might prove a difficult task. The reason is, that from the users’ point of view these kinds of questions are often difficult to understand and therefore also difficult to answer. Round tables should ease these difficulties by bringing developers and users closer together and thus enabling them to form a common understanding of the problem domain. Even if a number of questions remain unanswered this should not be regarded as a failure at all, instead it

⁶ This quote has been adjusted to reflect the new distribution of responsibility between GUC and COI.

should be regarded as the beginning of an iterative process that should be followed up during the course of the project.

This short guide for holding round tables intends to facilitate understanding between user partners and developer partners, as well as to provide a common frame for the interrelation of all round table results.

Preparing, holding and documenting round tables

We assume that every round table is organized and attended by a moderator and a note taker, who should both be familiar with the subject of the round table. For the specific goal of answering the developer questions we suggest the following approach.

From scenarios to models to systems development

In order to better understand the questions of the developers, users should know the motivation behind the questions. Simply put, during development of the future system two kinds of models are needed:

- **Information Models:** include knowledge about what kind of information is needed, how the information is structured, interrelated and so on.
- **Processes Models:** include knowledge about the relevant processes, their flow, and their interrelation and so on.

Thinking in terms of the development process, this can be regarded as the step from the scenarios towards a set of models (i. e. information models and process models) of the future system, which will form the basis for the development of the software system.

Making this motivation behind the questions explicit to the users will help the users answer the questions as well as understand the importance of their answers.

Facts vs. fiction

Of course, for the developers it would be most helpful if the users were able provide definitive answers to all their questions. For some questions this may easily be done, for example, through examining a given situation within the administration. However, many questions may not easily be answered because they refer to a situation of future use.

For example, question number 1 asks what kinds of forms exist for interaction of citizens and administration. In case such forms exist, the user partners are able to provide a definitive answer either themselves or by doing some research. This is what will call a *factual* answer. A factual answer is usually determined by current practice or the environment (laws etc.) of the user partners.

On the other hand, not all communication will be based on forms and for these situations, the user partners may have to “invent” an answer; that is, user partners will have to decide how they would want the interaction to take place using the future system. This is an example of what we will call a *preliminary* answer. A preliminary answer may change during the duration of the project when the users’ understanding of the system changes.

It is generally helpful to document, which answers (or parts of an answer) are factual and which are preliminary. In case of a factual answer it is helpful to comment on why the answer is regarded as factual (for example, by noting the relevant law). In case of a preliminary answer it is helpful to add a comment about which alternatives exist and why a certain alternative was chosen.

Suggested steps how to proceed

Preparation

- Focus on scenarios. Because all questions pertain to the scenarios, these should be placed in the centre of attention. Before the round table all participants should make themselves familiar with the scenario(s).
- Users should read all the questions and should try to get as much information as possible beforehand. E. g. discuss the issues with colleagues etc. Users may also prepare their own questions or comments that come up during preparation.

Meeting

- At the beginning of the round table copies of the relevant scenario(s) should to be passed out to every participant. The moderator should also describe the content of the relevant scenario(s) in a view words.
- Try to create and maintain a relaxed and productive atmosphere. Everyone should acknowledge that there are no ready made answers. The round table is a way to explore these new grounds as group of people that share a common goal, though their view points may be different.
- Try to follow the ideas of information models vs. process models and factual vs. preliminary answers in order to facilitate communication of the results to other project members.
- Identify those issues which cannot be resolved now but later need follow up activities (e. g. meetings based on further investigation, more detailed scenarios, prototypes etc.)

Documentation

- Documentation of the results should be prepared by the developers based on the concepts suggested above.

4.2 Activity Scenarios

4.2.1 Activity Scenario 1: Building Permission

This activity scenario is based on the intention of building a new family house in a municipality of the Košice region. At present, one can say a citizen becomes a victim of complex processes he/she needs to deal with while obtaining a building permission.

The Access-eGov system is intended to ease such procedures using an interactive web-platform which provides citizens with useful guidance of “what and how to do it”. As a result, a user shall be easily going through all of the “building permission procedures” required with no additional questions raised.

The added value delivered by the Access-eGov solution can be identified by more efficiency and performance achieved through processes optimizing and making the concerned public services integrated and thus more convenient for citizens as final beneficiaries. Doing so will also ensure more transparency in the public services delivery so that it shall encourage people using electronic public services more intensively.

Intention: Peter with his family plans to build a new family house somewhere in the Košice region.

He gets connected to the Internet and asks himself the following questions:

- What do I need in order to get a building permission?
- How long do all the procedures take?
- How much does it cost?

The procedure consists of the following steps which Peter does not yet know:

- Building type selection and locality selection
- Findings about relation between land-use plan and Peter’s intention
- Land-use planning proceedings (Statement on the locating of the building)
- Building proceedings (Building permission)

Peter has no idea of how to get the building permission on his house. He starts the Access-eGov (AeG) website and chooses the “building permission” section from the user menu. The building permission section is divided into two parts. He is provided with a “building permission” flowchart shown on the right side of the screen. The flowchart is interactive so he may start (choose) with any of the steps (please see the schemes attached). As Peter has no clue, he rather starts from the beginning. The left side of the screen represents a kind of interactive wizard with “narrative” questions. While logged in to the government web site Peter is provided with the flowchart showing the current state of his application process.

First, the system invites Peter to answer the following questions:

- **What type of building do you plan to construct?** Peter is provided with a roll-down menu (Building type menu) and required to select one of the provided building types. He chooses “family house”. Then comes another question:

- **In which location do you plan to build a house?** Similarly, Peter chooses from the menu 2 (list of municipalities in the region).

He then gets the information that he has to visit the municipality for the following purposes:

- Does the municipality have its land-use plan? (in paper-form)
- If so, is it up to date?
- Peter needs to locate the piece of land where he plans to construct his house in the land-use plan of the municipality
- Is Peter's intention of building a house in line with the land-use plan? (i.e. land-use plan shows different functional areas by various colouring and the functional area of his land must be the same as his intention – residential area)
- If so, has the municipality a land-use plan of the concerned zone/area? (very likely no)

Peter is provided with contact details on the concerned municipality (contact person, email address and phone number, opening hours, etc.) so he visits the village.

Peter comes back to the computer and answers the questions above. Because he is now a registered user he can log in and use the data that the system has saved for him.

- The most probable and frequent scenario is the following:
- The municipality has its own land-use plan and is up to date
- There is no land-use plan of the appropriate zone

Therefore Peter is put forward while in the system and is introduced with land-use planning proceedings.

Land-use planning proceedings

Later, the system by itself provides Peter with relevant the form (application form for the Statement on locating of a new building) and requests him to fill it in properly and according to the data gathered. Peter sends the application form to the given email address of the municipality.

To complete the application Peter is also required to:

- Pay administrative fee to the municipality for the services provided. Peter is asked to pay the fee within 7 days from the application has been sent. He pays the fee by the credit card using the AeG platform.
- Send a proof on the land ownership. The required documents to be delivered are: land certificate and land register map related to the land. Peter is required to visit the land registry administration - showing contact details, opening hours, what documents he needs to bring, what is the fee etc.
- Send two copies of project documentation on his house construction to the post address shown.

Peter visits concerned land registry office and requests the needed documents by official application. The documents shall be delivered to his post address no later than 30 days after he applies. As soon as he gets the documents, he sends them to the shown post address of the municipality.

While sending the application the AeG system informs Peter what else needs to be done. He is required to send a copy of the project documentation by mail also to other relevant bodies and persons in order to get a Statement on locating of new building. The web platform shows the following recipients (Peter will be provided with concrete contact details):

- Concerned bodies, relevant actors and the owners of neighbouring land
- Public authorities
- Owners and administrators of the technical infrastructure and any associated facilities

Peter will be contacted by a representative of the respective Building administration (municipality) within 72 hours after the application has been delivered by email (eSignature required). The representative will inform Peter whether or not the application was complete.

If the application is complete, he will be sent a notification from Building administration by email within an additional 24 hours confirming the beginning of land-use proceedings which ends with issuing the Statement on locating of a new building (without a verbal treat).

The system informs Peter about the following:

After the Building administration-municipality reviews all the positions of the relevant actors and proves accordance, the Statement on locating of a new building is delivered to Peter by post within 30 days since his application.

Once Peter gets the Statement by post, he logs into the system and is informed about next steps.

He is then given other online application form – Application for Building permission on a new building - family house.

Following the instructions Peter fills in the form and sends it to the municipality by email (the procedure similar to the above).

To complete the application Peter is also required to:

- Pay administrative fee to the municipality for the services provided. Peter is asked to pay the fee within 7 days from the application has been sent. He pays the fee by the credit card using the AeG platform.
- Send a proof on the land ownership. The required documents to be delivered are: land certificate and land register map related to the land. Peter is required to visit the land registry administration - showing contact details, opening hours, what documents he needs to bring, what is the fee etc.
- Send two copies of project documentation on his house construction to the post address shown.

While sending the form the AeG system informs Peter what else needs to be done. He is required to send a copy of the project documentation by mail also to other relevant bodies and persons in order to get a Statement on locating of new building. The web platform shows the following recipients (Peter will be provided with concrete contact details):

- Concerned bodies, relevant actors and the owners of neighbouring land
- Public authorities
- Owners and administrators of the technical infrastructure and any associated facilities

Peter will be contacted by a representative of the respective Building administration (municipality) within 72 hours after the application has been delivered by email (eSignature required). The representative informs Peter whether or not the application was complete.

If the application is complete, he will be sent a notification of the Building administration by email within 24 hours confirming the beginning of Building proceedings which ends with issuing the Building permission (without a verbal treat).

The system informs Peter on the following:

After the Building administration reviews all the positions of the relevant actors and proves accordance, the Building permission is delivered to Peter by post within 30 days after the applying.

This concludes the process. Peter can start with the construction.

ICT components in use:

- Electronic correspondence
- Online forms available
- Online tracking of the procedure (graphic indication of current status, timings + count-down of stated time period etc.)
- Online information on the costs of procedure (its parts), estimations on project documentation costs, etc.
- Online list of all relevant institutions

4.2.2 Activity Scenario 2: Establishing an Enterprise

The following outline of the scenario is based on the general description of the Access-eGov solution as the IT system supporting citizen or business in context of public services provision. In other words, Access-eGov platform will use the detailed and semantically described information about the public services in order to provide the customer with appropriate advice on steps which have to be taken in particular business episode [or life case]. The system should act as CRM system with profile of the user collected in order to build appropriate track of activities. In some cases the activities which can be performed by invoking of web service or filling the electronic form, Access-eGov should be integrated [interoperated] with the applications performing these tasks [e.g. legacy systems].

The service we describe in scenario is establishing an enterprise (starting the own business) by the user. This service consists of four main tasks:

- Registration in the City Hall [local government].
- Registration in the Statistical Office.
- Registration in the Tax Office.
- Registration in the Social Insurance Agency.

The main goal of delivering that service is to enable citizens to establish their enterprise via Internet (in cases where it is possible) and to deliver complete information related to the service in the way of dialogue between user and intelligent agent (Access-eGov platform), right interpretation of user's queries and asking additional questions to the user. The aim of performing each task is to give the user all required instructions, to point activities he should do, places he should go to and forms he should fill in and enable the access to e-activities, all of them to complete the service, which end result is starting the own business of the user.

Performing the tasks from scenario takes place in different offices and in different time. The user should perform them in the right order.

Activities related to the service:

- Identification of the user.
- Identification of type of business activity he/she wants to carry out and asserting that this kind of business requires registration. If registration is not required Access-eGov finishes it's action.
- Identification of the way of running the business, giving the user whole important information relevant to available possibilities, their advantages and disadvantages and legal rules related to it. Access-eGov platform makes accessible two possibilities:
 - private person running the business,
 - civil law partnership.
- Presenting the user with ways of taxation:
 - tax card,
 - lump sum,
 - book of incomes and expenditures,
 - full bookkeeping (the books),
 - issue of paying value-added tax (VAT).
- Giving information about duty and possibility of opening bank account.
- Giving information about the usefulness (sometimes necessity) of having a rubber-stamp.
- Giving information about all legal rules related to the registration and giving links to appropriate laws.

Description of the scenario

The user who wants to establish his enterprise comes on Access-eGov web site and registers himself putting his personal details. In case of visiting the web site earlier his data are available already. He asks the question related to his will of starting his own business. The first task of platform is to identify the type of business activity (for example grocer's, pub, courier service, architecture office etc) on the basis of the user's query or additional questions asked the user, for example:

What kind of business exactly do you want to start?

What services do you want to deliver to customers?

Where will your premises be situated?

...

After identification Access-eGov informs the user if his enterprise requires registration or not. If the registration is unnecessary the user gets that information and it is the end of Access-eGov's job. If the registration is required platform undertakes the further tasks and finds out the way of running the business giving two possibilities:

- 1) private person running the business,
- 2) civil law partnership

with all important pieces of information to facilitate the user's choice. The user makes the decision.

Ad 1)

In case of that form of running the business Access-eGov presents the way of handling that situation. First of all the user has to register his enterprise in a city hall of local government, dependently on place of his/her residence. Platform provides the user with an appropriate registration form and fills automatically some information in. The user completes missing information and Access-eGov stores some of them in order to reuse it when needed. The user encloses document proofing his ownership for his premises and defines the exact subject of his business in accordance with the Polish Classification of Business (PKD). He becomes tips from Access-eGov how to define the business in his/her case. The registration form should be applied no later then 7 days since the event justifying the registration. There are three possibilities of applying the form:

- personally in a city hall,
- posting the form in registered letter (in that case user's signature has to be confirmed by a notary),
- via e-mail (in that case electronic signature is required).

Before application the user pays stamp-duty 100 PLN. He gets information about the obligation to receive concession, licence or permission to run the business when needed. He also finds out about having appropriate professional entitlements (if they are required) by him or his workers. The office gives the permission to run the business no later then 3 workdays from the day of receiving the application form and certificate of being registered is given by an appropriate office worker to 14 days from the application.

The user goes to Statistical Office accordingly to place of his residence within 14 days from receiving the certificate of being registered. He receives there an identity number of his enterprise -

REGON. In order to obtain REGON Access-eGov provides the user with appropriate form (RG-1) and fills in automatically some data which it has access to (e.g. personal data from wrapped legacy systems). Missing data are completed by the user and some of them are stored by the platform to reuse it in the future. The user has to enclose the certificate of being registered in the city hall along with the RG-1 form.

Next step is choosing the way of taxation. The user gets information about each possibility and having any doubts asks questions, then makes the decision. He decides also whether he becomes VAT payer or not. Access-eGov guides the user dependently on his choice. Regardless of way of taxation the user opens bank account for his enterprise (choice of a bank depends on the user). Before that gets information about requirement (sometimes, depends on bank) of having own rubber-stamp.

After opening bank account the user registers his enterprise in Tax Office appropriate for place of his residence or premises (if they are different) in order to receive the tax identification number (NIP) for his enterprise. The user applies the form (NIP-1) filled in by the Access-eGov and encloses the certificate of being registered, REGON number and agreement of the bank account. If he/she becomes VAT payer he applies also VAT-R form before the day of first taxed activity and pays stamp-duty. In case of being exempted from VAT he applies VAT-6 form.

Next step is registration in the Social Insurance Agency (ZUS) appropriate for the place of business activity. Every entrepreneur is obligated to pay pension insurance and has to declare it self-dependently within 7 days from originating the duty of having insurance (starting the business) or employing each worker. Access-eGov fills in appropriate forms: ZFA and ZUA for the employer and ZUA for each worker or ZZA in case of health insurance only. The user must enclose copy of Tax Office decision about NIP number and certificate of Statistical Office about REGON number. Accordingly to situation the user encloses also information about owned bank accounts (ZBA form) and various addresses where he will be running the business (ZAA form). There are two possibilities of applying these forms:

- personally in the agency,
- posting a registered letter.

On the basis of first registration the account of insured person is opened and denoted by special number.

The last step taken by the user is notifying the regional work inspector and state sanitary inspector about the place, scope and kind of the business, predicted number of workers and procedures of work security and hygiene related to the business. Access-eGov informs about that requirement and provides the information on offices where the user can arrange it.

Ad 2)

The way of delivering service in case of civil law partnership is very similar. There are only a few differences. Civil law partnership is a kind of agreement concluded between two or more people, who become partners. It can be written agreement or an oral contract, there is no need of notarial contract.

Registration of each partner in a city hall of local government is carried out in the same way. Each partner becomes an entrepreneur and all of them have to pay a stamp-duty 100 PLN.

Registration in the Statistical Office should take place within 14 days from receiving the certificate of being registered in a city hall. Partners fill in RG-1 form and enclose agreement of their partnership (or in default of agreement their written declaration that they conduct civil law

partnership) and a copy of certificate of being registered of each partner. After that partnership receives REGON number.

In next step partners choose the way of taxation and decide whether they will pay VAT or not and open a bank account.

After opening a bank account partners register their enterprise in Tax Office appropriate for the address where they are going to carry out their business activity in order to receive the tax identification number (NIP). They apply the NIP-2 form and the NIP-D form (there is information about all partners) and enclose the certificate of being registered in a city hall, REGON number, agreement of partnership, document proofing their ownership for premises where they will run their business and bank account number. If they become VAT payers they apply the same forms as private person.

Registration in the Social Insurance Agency looks almost the same, partners apply the same forms ZFA with payer's data, ZUA to register insured person, ZAA and ZBA if needed.

As the last step partners notify the regional work inspector and state sanitary inspector about their enterprise.

An example of most common scenario

The identified user (on the basis of his place of residence) asks the question about establishing an enterprise. The Access-eGov platform identifies the type of enterprise and on the grounds of it indicates, whether the user should register or not. If the registration is required the platform checks whether any licence or concession is needed and gives the user appropriate guidelines in case of demand for licence or concession. After that the registration form is automatically filled in with the data inputted from exterior databases and completed by the user. At the end user signs the form with his electronic signature and the form is transferred to Gliwice City Hall. The data is stored in SEDZIG system by the platform. Responsible civil servant (chief of Economic Events and Municipal Services Department) makes the decision and signs the document. User gets information about the decision in electronic way. After that RG-1 form is automatically filled in and signed with electronic signature of the user and transferred to Statistical Office in order to afford the REGON number of user's enterprise. Information on REGON number is delivered to the user in electronic way. After receiving REGON number and choosing the way of taxation (with help of Access-eGov decision support mechanisms) the user opens a bank account for his enterprise. Appropriate NIP forms are automatically filled in, signed by the user and delivered to the Tax Office. The user gets information about the new NIP number or about updating the information in Tax Office in case of having NIP number by the user already. Then dependently on employing the workers appropriate ZUS forms are filled in and the user gets an account of insured person and is notified about it in electronic way.

4.2.3 Activity Scenario 3: Marriage / Responsibility Finding

Assumptions about the Systems

This scenario assumes that there is a state-wide responsibility finder for state of Schleswig-Holstein in existence which was built using Access-eGov components and other technology. It also assumes that there is a “central annotation service web site” available which provides information, resources, and on-line services for annotation of web content. The development of components for such a central annotation service will be part of Access-eGov.

Anna and Brano⁷ want to get married

Place: Ascheberg, Schleswig-Holstein; Anna and Brano’s living room. *Time:* February 28, 2008.

Anna is a German citizen living in the municipality of Ascheberg, Schleswig-Holstein. Her future husband Brano is a Slovak citizen.

Anna and Brano have decided that they want to get married in Ascheberg within the next four weeks. In case they are able to find a special place for the wedding ceremony (like a ship or a light house) they are willing to wait a little longer and also travel for up to 100 km.

Today, Anna wants to find out what their options regarding the wedding location are, and what kind of legal preparations and documents are necessary, specifically:

- What kind of legal prerequisites exist? (Citizenship, etc.)
- What kinds of documents are needed? (Birth certificate, family records etc.)
- Will Brano, as a foreign citizen, need to supply additional documents?
- From where are these documents available? (Responsible authority including contact details and office hours.)
- Available locations for wedding ceremony, including available dates
- Nearby special locations for wedding ceremony (like a ship or a light house).
- How and where can she book a wedding in one of those locations?
- Any other information that may be of relevance.

Anna wants to look up this information during her lunch break today. She is sitting at her office computer and starts *ZuFiSH*, the state-wide responsibility finder of Schleswig-Holstein. Anna chooses to search by provision of service and enters the term “marry”. *ZuFiSH* presents her with a number of results, including “Marriage”, “Marrying a foreign citizen”, “Weddings on Sunday”, etc. Each of the results includes a single explanatory sentence of the provided service. Anna chooses “Marrying a foreign citizen”.

She is now presented a short introductory description of marriage in general and the conditions for marrying a foreign citizen in particular. The description notes that for the legal act of marriage the specific foreign citizenship is important, because the regulations for EU-citizens and non-EU-citizens are different. She is asked to provide the citizenship of her future spouse and Anna selects “Slovak” from the provided list.

ZuFiSH now presents her with the following information:

⁷ pronounced *Branyo*

- Legal requirements in the form of a generally understandable short text.
- Required documents with a short description of what it is and where it can be obtained, including a link to more detailed information like expected time involved in obtaining it etc.
- Which civil registry offices (“Standesamt”) perform weddings? (*Note from authors: Possibly all offices do, but we lack the expertise to know.*)
- A list of other available locations for the wedding ceremony, including a link to broaden the search.

Anna marks the list of required documents for printing it out later.

Now she wants to know, which other locations are available for the wedding ceremony. She expands the list to display locations that are at most 50 km away from Ascheberg. She looks through the list and finds two ships that suit her taste. She cannot find a list of available dates but the contact details of the responsible authorities are included. She adds the two ship’s entries (including the contact details) to her printing list to contact them later.

Finally, Anna prints out all information that she has collected and leaves her office to eat some lunch. Tonight, she will show Brano what she found out and they will write an email to the ship’s office to ask for available dates.

Added Value

Access-eGov enables information to be shared and integrated from different sources. E. g., in the scenario the information comes from different sources:

- The description of legal requirements could come from a catalogue of descriptions provided by the state of Schleswig-Holstein.
- The information about where the required documents can be obtained (addresses, contact details, etc.) could come from each of the administrations that are responsible for each document.
- The information about other available locations can come from administrations as well as private parties that offer this kind of service.

For Anna and Brano this means that they do not have to search for information and services in different places. Instead, they visit a single responsibility finder on-line and get all necessary information from one place.

4.2.4 Activity Scenario 4: Web Site Annotation

About this Scenario

The term “annotation” refers in the context of semantic technologies to the process of enriching information with meta-information. For example, the digits “24103” on a web site are basically meaningless to a computer system, while a human visitor is able to infer from the context of the page that this number represents the zip-code of a city in Germany. In order to enable the computer to identify the zip-code (and do other things with it, e. g. compute the shortest route to the city) the number will be annotated with appropriate meta-information.

The annotation process will be presented with two different cases of communal web-sites:

- c. the web site of the city of *Eurocity*, which has a full-time public relations employee (by the name of *Anna A.*) who uses a content management system (CMS), and
- d. the web site of the small community of *Betown* with static web pages where an unsalaried honorary worker (by the name of *Bernd B.*) is doing the annotation.

For each case three different tasks with a different scope will be described:

- **Task 1:** Complete annotation of the existing communal web site
- **Task 2:** Creation and annotation of a single, new web page (a page for a new authority is created)
- **Task 3:** Annotation of a new element on an existing web page (the opening hours of an office have changed temporarily)

Assumptions about the Systems

This scenario assumes that there is a state-wide responsibility finder called “ZuFiSH” for the state of Schleswig-Holstein in existence which was built using Access-eGov components and other technology. It also assumes that there is a “central annotation service web site” available which provides information, resources, and on-line services for annotation of web content. The development of components for such a central annotation service will be part of Access-eGov.

Added Value

This scenario is concerned with the perspective of information providers. To these, Access-eGov will provide a higher level of information sharing and integration than traditional web based systems. An administration that annotates their information will be able to use this information in a variety of ways, while at the same time enabling others to make use of it in their own way.

The scenario highlights the benefit of sharing information across administrations (within Schleswig-Holstein) as well as across borders (with the partner cities in Slovakia and Poland).

Task 1: Annotation of a Communal Web Site

Time: December 2007

Variant A: Anne A. is working full-time for the city of Eurocity. She is responsible for all matters of public relations. This also includes the responsibility for the communal web site of Eurocity. Anne is very busy with many different public relations projects and therefore has not much time to spare when it comes to extra work for the communal web site.

In the summer of 2007, the city council has decided to make the information on their communal web site available for information sharing. A first application will be to make the information findable via *ZuFiSH*, the central responsibility finder of Schleswig-Holstein. This will also make the information available to other Semantic Web enabled applications, like the communal web site of their Slovak partner-city.

Following this decision, Anne received an introduction of how the Semantic Web works in general, and what her part will be in preparing the communal web site for it. This would mean extra work for her in the beginning, but in the long run she expects the web site (and her own work) to benefit from this effort.

One of the first things she had to do was to contact the *ZuFiSH central annotation service web site* and register an account for the city of Eurocity and herself where she could enter some mandatory information about Eurocity. For example, she had to indicate that Eurocity is an urban district (“kreisfreie Stadt”) in Schleswig-Holstein and provide the URL of the communal web site.

From the introduction she had learned that the technicians would have to contact the central annotation service as well. They would get instructions what changes need to be made to the CMS. A couple of weeks ago Anne had received a phone call from one of the technicians, telling her that the CMS now supports the necessary annotation functions and that she may start to upgrade the templates.

Starting that day she had begun to annotate the existing content. The first thing she had to do was to change the existing templates. She had been told at the introduction that all annotated web pages will be immediately available for the ZuFiSH. Therefore it would be best to start with the template for the web pages of the local authorities that contain the office hours and contact details. To adjust the appropriate template, Anne opens the *template module* of the CMS and selects the “local authority template” for editing in the template editor.

The system presents her with a new prompt for a *template type*. Anne has already learned that every template of the CMS has to be assigned a special type, which must be taken from the catalogue of types (provided by the central annotation service). Therefore, she needs to select a type from the graphically presented catalogue. Because she does not know the correct type, she uses the search function, to look for types that are used to enter office hours. She types “office hours” and is offered a number of template types that provide fields for office hours. She looks through the entries and finds “Online business card”. Because she is not sure if this is the right kind of template type, she inspects the detailed description. The description points out that this is a general type which has a number of specialized types, one of them being “Online business card for communal authority”. This is obviously what Anne was looking for. She reads through the template type’s description to learn, if the type includes all necessary information that she wants to enter: as mandatory information the description lists “Responsible community”, “Title of authority” and “Address”, as well as optionally “Office hours” (among others).

She now assigns the type “Online business card for communal authority” to the template. The template editor indicates that she needs to add the mandatory information.

For the mandatory field “Responsible community” it already shows the default value “Eurocity”. This information comes from the information that Anne has provided to the central annotation service when she had registered her account. She accepts the default value.

Now she needs to identify the “Address” within the template, which consists of the mandatory elements “Street with number”, “Zip code”, and “Name of city”. The current template already provides these fields and all she has to do is assign the respective fields the appropriate types.

The template also contains fields for the title and the office hours. Again, she can simply assign the type “Title of authority” and “Office hours” to these fields.

She saves the changes and as a final step, tells the CMS to automatically update all pages that use the template.

Result: As soon as all pages are updated, the information on these pages will be available in the ZuFiSH and in the communal web site of the Slovak partner city.

Anne does not have the time to change the other templates today because she has an important meeting. There is still some work ahead of Anne, because she has three other templates to change, but she will do this on another day.

Variante B: Bernd B. is a retired teacher living in Betown. Computers are his hobby and that is why he volunteered to maintain the web site of his community a couple of years ago, using only a simple web editor. When he heard that the responsibility finder of Schleswig-Holstein offers a central annotation service web site that aids the annotation of communal web site, he was

immediately curious. He asks the community council for the permission to annotate the communal web site and thus make it available to the ZuFiSH and other Semantic Web applications. The council has no objections.

Bernd starts by reading the annotation manual that is available from the central annotation web site. From that he learns, that because he is using a simple HTML editor, he must somehow manually add the annotation to these HTML pages. One way is to use the annotation web site's *online annotation service*. To use this service he registers an account for Betown and receives a user name and password. He also has to give some general information (like Anne had to).

He then logs in to his new account. Here he is directly presented a list of web pages that have not been annotated. At this point, the list contains all the web pages of Betown's web site, because Bernd has not started annotating yet.

He decides that he wants to go ahead and annotate his first page. For this, he selects the entry representing the page of the mayor's office, which contains the mayor's name, the office's address, the office hours, and a short welcome message written by the mayor.

After selecting the entry the annotation system asks him to assign a type to this page. From reading the annotation manual he knows how to search the type catalogue. Like Anne did in the CMS, he searches the annotation web site's online version of the catalogue for "Office hours" and eventually locates the type "Online business card for communal authority", which he then assigns to the page.

Now that he has chosen a type, the system shows him the content of the mayor's page and asks him to mark the mandatory information ("Responsible community", "Title of authority" and "Address"). One-by-one he marks and selects the required information (except for "Responsible community" as it is already assigned the default value "Betown"). He also selects the (optional) office hours and marks them with the type "Office hours". There does not seem to be a special type for the welcome message, so he marks it with the general type "Description".

He saves his work and immediately tries, if he can now find the information in the ZuFiSH.

Result: The information about the mayor's office can now be found in the ZuFiSH (and other Semantic Web applications). To make all information from the communal web site available, Bernd has to annotate every page in this way.

Task 2: Creation and Annotation of a New Web Page

Variante A: A couple of weeks ago Anne has updated the last template. Today she needs to add a page for the local fire-fighters to the web site. The fire-fighters have a new chairman and he has recently contacted Anne to ask what information she would need. She told him that she only needs an address and a short description about the local fire-fighters, preferably by email.

She just received the email with the necessary information and has a minute to spare, so she decides to create the web page right away.

She starts the *content editing module* of the CMS. Here she selects to create a new page based on the familiar template "Online business card for communal authority". This action opens a page editor where she can enter the information. She enters "Fire-fighters of Eurocity" into the field named "Title of authority". She copies and pastes the rest of the information one-by-one directly from the email: first the street, then the zip-code, the name of the city, then the description (the latter to the optional field "Description"). Because the fire-fighters have no office hours, she does not enter anything here, which will result in the office hours not to appear on the web site.

Although the title already contains the word “Fire-fighters”, Anne wants to make sure that the page can be found when searching for other related terms, like “emergencies”. She therefore assigns a keyword to the page by selecting “Fire-fighter” from the catalogue of predefined keywords (which is supplied by the central annotation service).

She saves the new page.

Result: The new information is now available on the communal web site, the ZuFiSH, and the web site of the Slovak partner city.

Variante B: Because the manual annotation is a lot of work, Bernd has not yet completely annotated the communal web site of Betown. Today he wants to try something new. He has read in the manual that the annotation web service provides special HTML templates that already contain some annotation. He will add a page about the local honorary firefighters and their new chairwoman. He has already talked to the chairwoman and received all information from her that he wants to put on the web page.

Bernd logs on to the central annotation service web page using his user name and password. He chooses the option “Create downloadable HTML template”. Again, he must first choose the type of template he wants to create. He chooses “Online business card for local authority”. He can now enter default values for all the mandatory and optional fields. The field “Responsible authority” already contains “Betown”. He enters the information that he got from the chairwomen, chooses “Generate and download template”, and saves the file on his computer.

He then starts his simple HTML editor and imports the downloaded file into a new page. Everything looks OK. He saves the page and transfers it to the communal web site.

Result: He checks the ZuFiSH and finds that the new information is already available.

Task 3: Annotation of a New Element on an Existing Web Page

Variante A: Anne has just received a call that the mayor’s office will be closed this Thursday due to an employee meeting. Anne opens the CMS’s content editing module to enter this information right away. She navigates to the page that contains the mayor’s office opening hours and opens the page for editing. Instead of permanently changing the office hours she decides to add a temporary notice. She chooses “Add temporary notice” and in the field that appears she enters: “Please note: The office will be closed all day on Thursday, Jan. 31st 2008, due to an employee meeting.” She sets the “Valid until” property of the temporary notice to “Friday, Feb. 1st, 2008” and saves the page with the note.

Result: The notice will be displayed on the page only up to the given date. The ZuFiSH and other Semantic Web applications will also process the notice only until that date.

Variante B: In Betown the mayor’s office will also be closed due to the employee meeting. Bernd wants to add a notice about this on the web site as well. To accomplish this, he first has to change the web page and afterwards annotate the change using the annotation service’s web site.

He starts his simple HTML-editor and loads the mayor’s page, where he wants to add the notice. At the end of the page he adds a new paragraph, reading “Please note: The office will be closed all day on Thursday, Jan. 31st 2008, due to an employee meeting”. He saves the page and uploads it to the communal web site.

Bernd now logs on the central annotation service’s site and calls up a list of pages that have changed since his last visit. The list shows a single entry: the page with the added notice.

He selects the entry for editing and the system presents him the page's content with the new paragraph already selected. All he needs to do is assign the appropriate type ("Temporary notice") and enter "Feb. 1st, 2008" as the expiration date. He saves the changes and logs off.

Result: The temporary notice is displayed on the communal web site until Bernd manually removes it. The ZuFiSH (and other Semantic Web applications) will process the notice only until its date of expiration.

4.3 Questionnaire Summaries

This section of the deliverable 2.2 *User requirement analysis and development / test recommendations* is not released to the general public for privacy reasons.

4.4 Interview Summaries

This section of the deliverable 2.2 *User requirement analysis and development / test recommendations* is not released to the general public for privacy reasons.

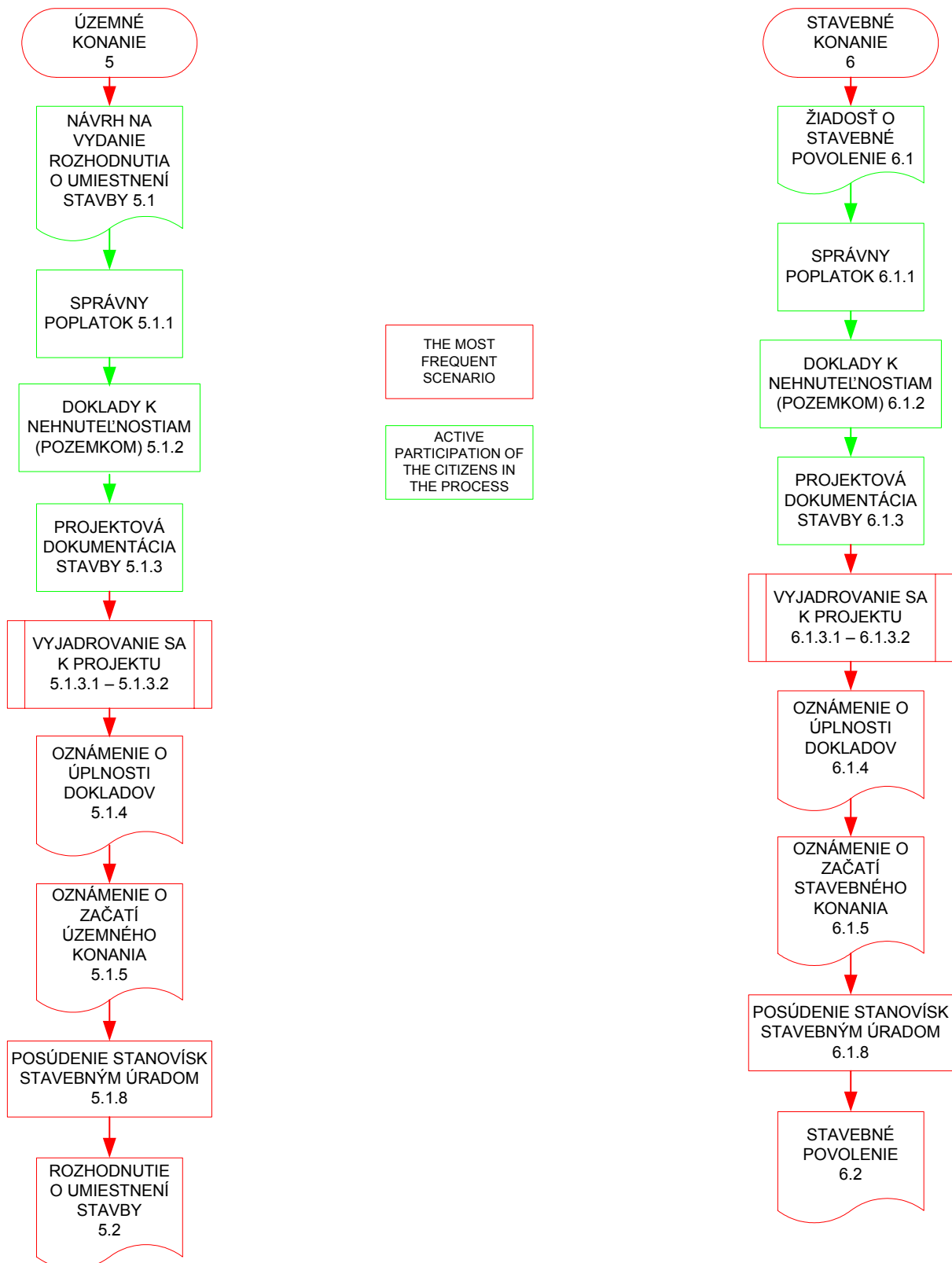
4.5 Round Table Summaries

This section of the deliverable 2.2 *User requirement analysis and development / test recommendations* is not released to the general public for privacy reasons.

4.6 Process Models (Examples)

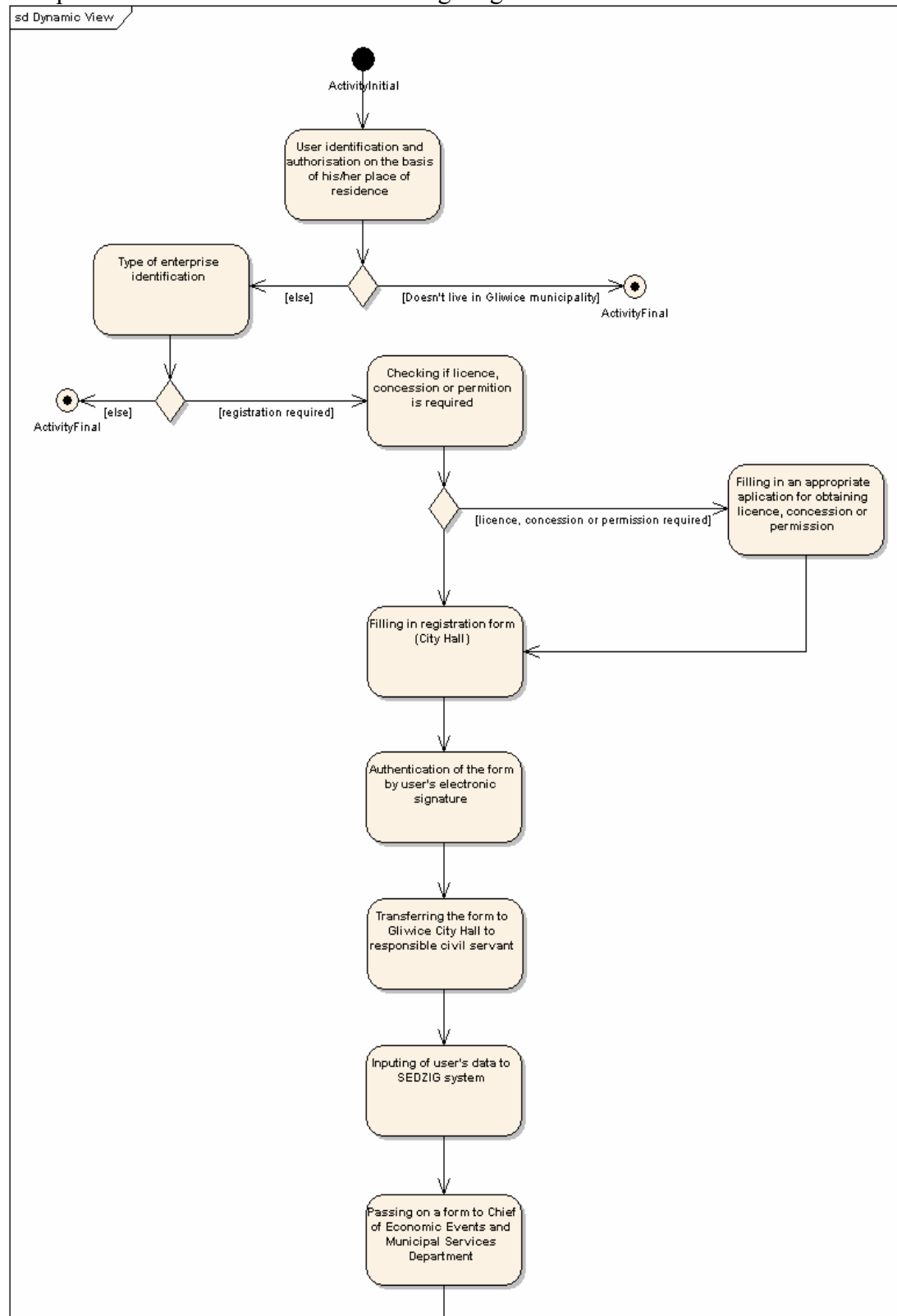
4.6.1 Building Permission

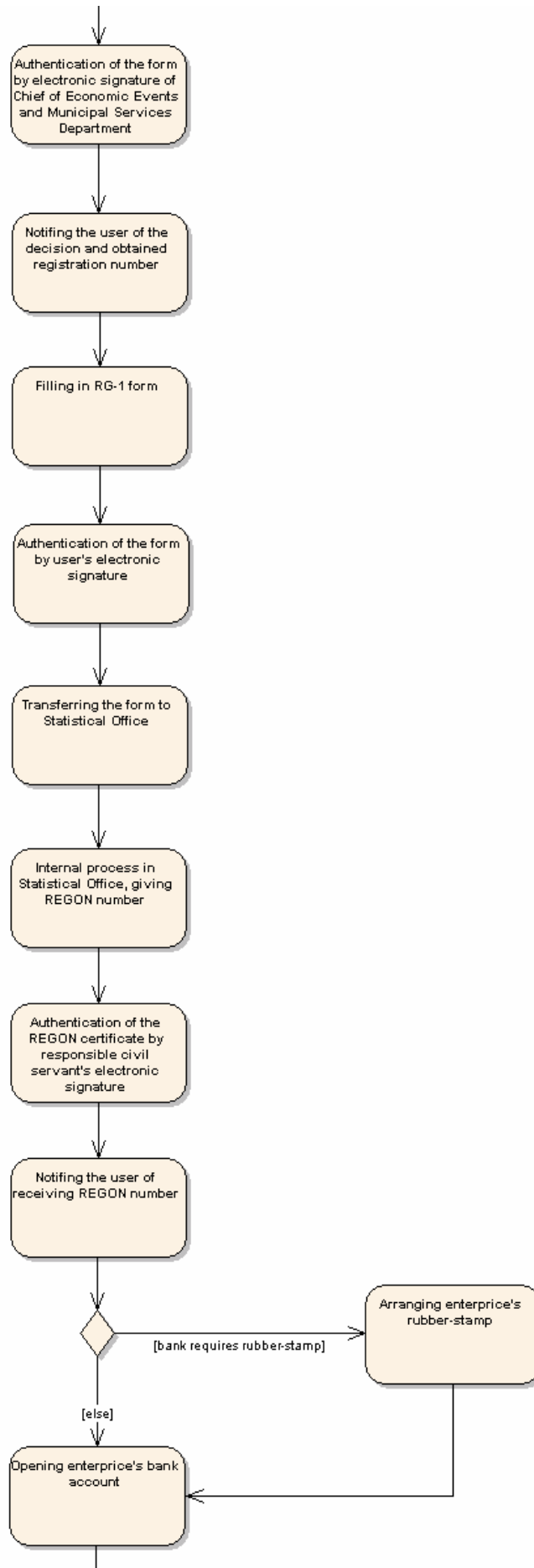
Land-use and building proceedings:

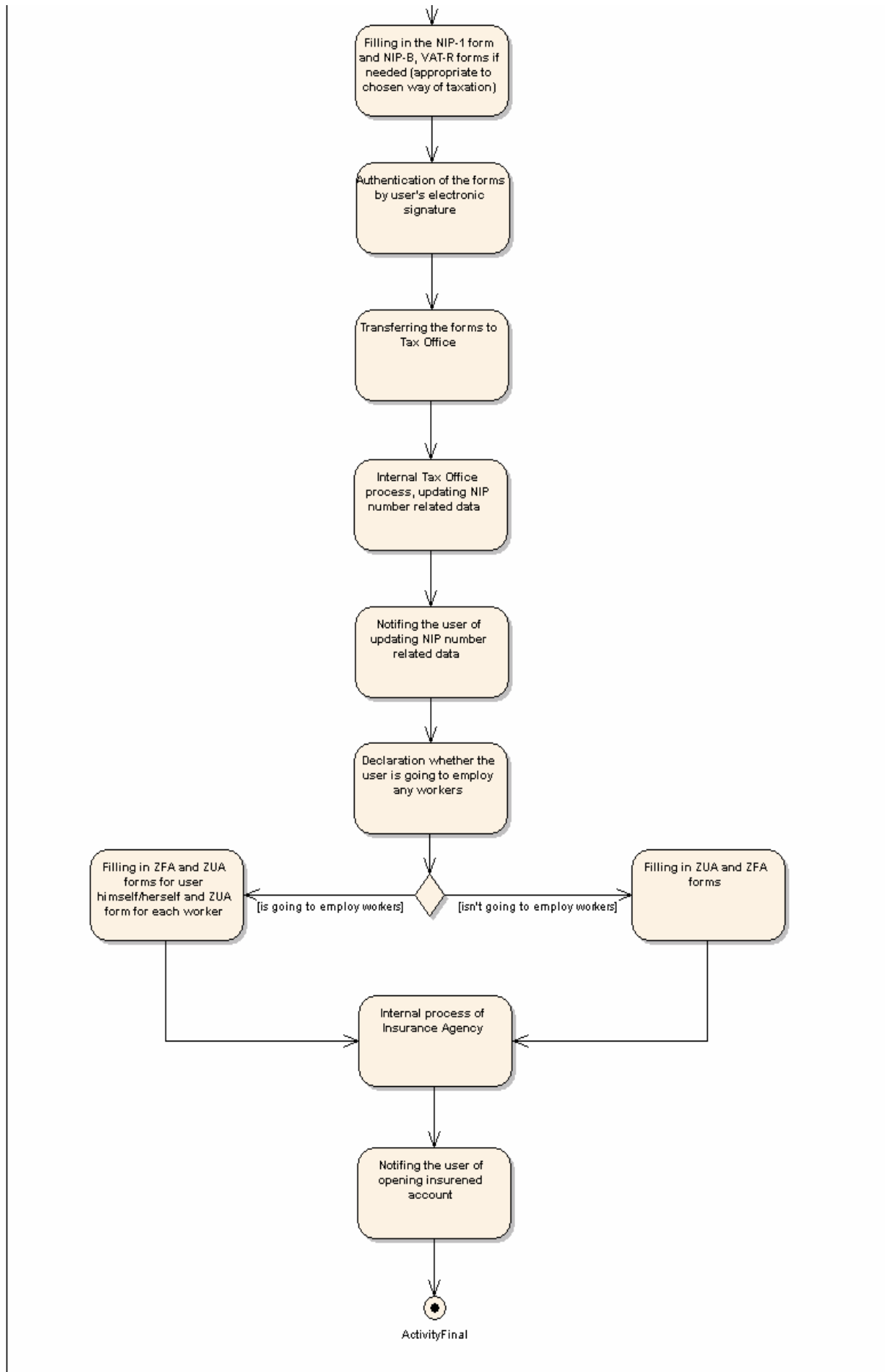


4.6.2 Establishing an Enterprise

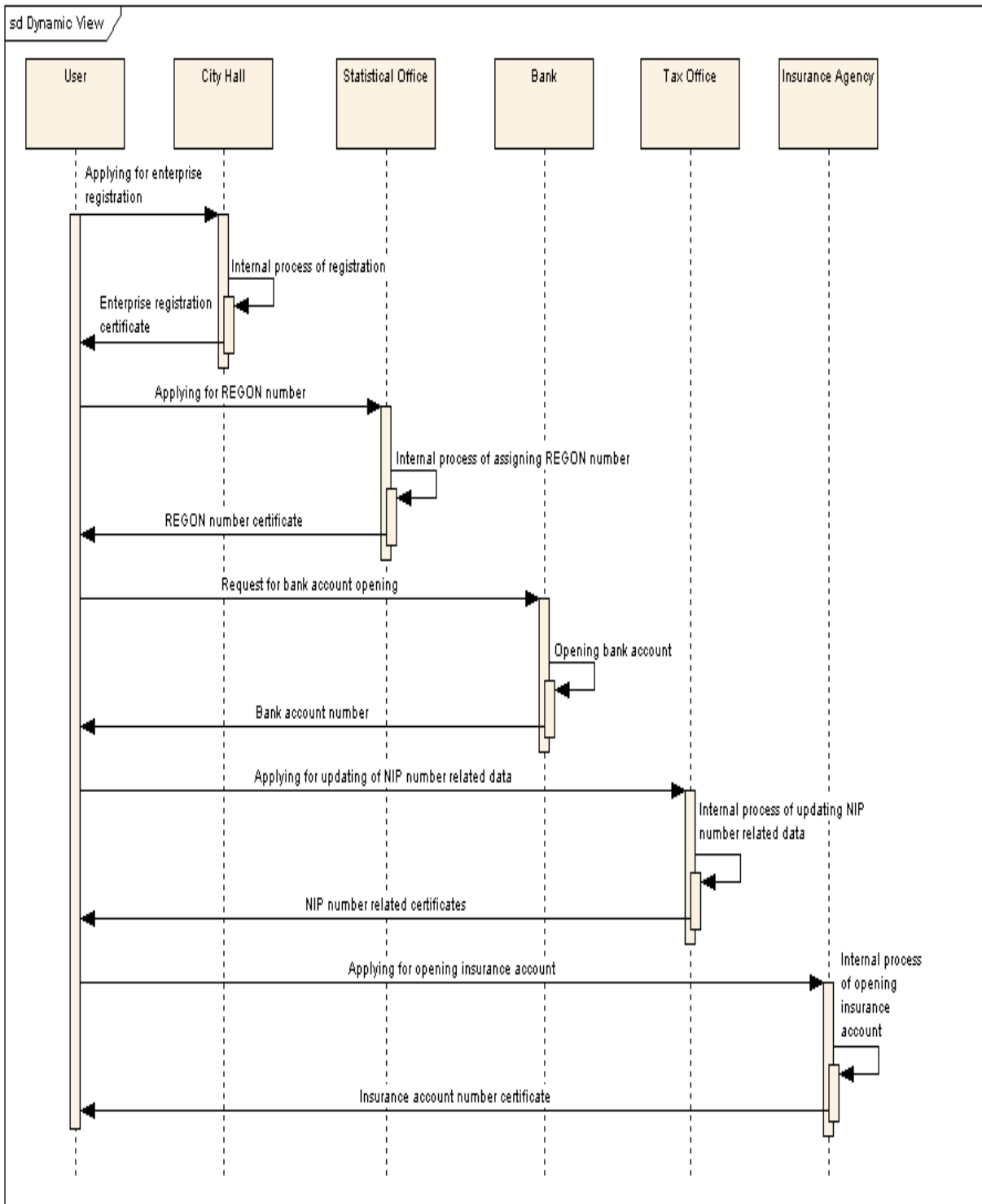
The process is illustrated on the following diagram:







The figure below illustrates the division on tasks performed in particular public authorities and by the user.



4.6.3 Marriage / Responsibility Finding

Check list by *Standesamt* (civil registry) for control of certificates and other documents which are necessary for the application of marriage. The check list will serve as a basis a life event process model; any entry of the check list may require a service to be found and/or evoked within overall process.

for
HER

for
HIM

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Certified transcription from the parent's family register (if the parents' marriage took place after 1/1/1958 in one of the old German states) |
| <input type="checkbox"/> | <input type="checkbox"/> | Certificate of parentage |
| <input type="checkbox"/> | <input type="checkbox"/> | Certificate of birth |
| <input type="checkbox"/> | <input type="checkbox"/> | Registration (for local citizens available from the local <i>Standesamt</i>) |
| <input type="checkbox"/> | <input type="checkbox"/> | Identity card or passport |

For foreign citizens:

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Passport / replacement passport |
| <input type="checkbox"/> | <input type="checkbox"/> | Proof of academic degree |
| <input type="checkbox"/> | <input type="checkbox"/> | Certificate of parentage or certified transcription from the register of birth for premarital children. |
| <input type="checkbox"/> | <input type="checkbox"/> | Certified transcription from the family register of the last marriage or the marriage certificate, if the marriage took place a) before 1/1/1958, b) in one of the new German states, or c) in a foreign country. |
| <input type="checkbox"/> | <input type="checkbox"/> | [additional requirements may be stated by Standesamt clerk] |

Additional requirements for foreign citizens:

[...]

4.7 Web Accessibility Check List

Introduction

Objectives

The aim of this document is to offer a practical checklist that will allow content and service providers within ACCESS-eGOV pilots, as well as beyond to provide accessible services that will ensure that they meet accessibility guidelines, opening the eGov services also to all citizens through a design for all ethos. This checklist will also be applied during the pilots to assess the accessibility of the local ACCESS-eGOV instances.

This Accessibility Checklist was created, using materials from the World Wide Web Consortium (W3C), and is a basic requirement for citizens with disabilities to ensure that the front-end side of the will also be usable by them.

Guidelines

General Guidelines

The first step is to go through the checklist, and mark yes, no, or N/A (not applicable) for each question. The list is divided into priorities, so once you've finished filling out the checklist, you can determine where to focus your attention first.

Priority 1 Checkpoints

General Guidelines

Use this checklist to evaluate the accessibility of ACCESS-EGOV for Priority 1.

In General (Priority 1)	Yes	No	N/A
Provide a text equivalent for every non-text element (e.g., via "alt", "longdesc," or in element content). Non-text elements include: images, graphical representations of text (including symbols), image map regions, animations (e.g., animated GIFs), applets and programmatic objects, ASCII art, frames, scripts, images used as list bullets, spacers, graphical buttons, sounds (played with or without user interaction), stand-alone audio files, audio tracks of video, and video.			
Ensure that all information conveyed with color is also available without color, for example, from context or markup.			
Clearly identify changes in the natural language of a document's text and any text equivalents (e.g., captions).			
Organize documents so they may be read without style sheets. For example, when an HTML document is rendered without associated style sheets, it must still be possible to read the document.			
Ensure that equivalents for dynamic content are updated when the dynamic content changes.			
Avoid including any effects that cause the screen to flicker.			
Use the clearest and simplest language appropriate for your site's content.			
If you use images and image maps (Priority 1)	Yes	No	N/A

Provide redundant text links for each active region of a server-side image map.			
Provide client-side image maps instead of server-side image maps, except where the regions cannot be defined with an available geometric shape.			
If you use tables (Priority 1)	Yes	No	N/A
For data tables, identify row and column headers.			
For data tables that have two or more logical levels of row or column headers, use markup to associate data cells and header cells.			
If you use frames (Priority 1)	Yes	No	N/A
Title each frame to facilitate frame identification and navigation.			
If you use applets and scripts (Priority 1)	Yes	No	N/A
Ensure that pages are usable when scripts, applets, or other programmatic objects are turned off or not supported. If this is not possible, provide equivalent information on an alternative accessible page.			
If you use multimedia (Priority 1)	Yes	No	N/A
Until user agents can automatically read aloud the text equivalent of a visual track, provide an auditory description of the important information of the visual track of a multimedia presentation.			
For any time-based multimedia presentation (e.g., a movie or animation), synchronize equivalent alternatives (e.g., captions or auditory descriptions of the visual track) with the presentation.			
And, if all else fails (Priority 1)	Yes	No	N/A
If, after your best efforts, you cannot create an accessible page, provide a link to an alternative page that uses W3C technologies, is accessible, has equivalent information (or functionality), and is updated as often as the inaccessible (original) page.			

Priority 2 Checkpoints

General Guidelines

Use this checklist to evaluate the accessibility of ACCESS-EGOV for Priority 2.

In General (Priority 2)	Yes	No	N/A
Ensure that foreground and background color combinations provide sufficient contrast when someone with a color deficit views it or when viewed on a black-and-white screen. (Priority 2 for images, Priority 3 for text).			
When an appropriate markup language exists, use markup rather than images to convey information.			
Create documents that use proper grammar.			
Use style sheets to control layout and presentation.			
Use relative rather than absolute units in markup language attribute values and style sheet property values.			

Use header elements to convey document structure and use them according to specification.			
Mark up lists and list items properly.			
Mark up quotations. Do not use quotation markup for formatting effects, such as indentation.			
Ensure that dynamic content is accessible, or provide an alternative presentation or page.			
Until user agents allow users to control blinking, avoid causing content to blink (instead, change presentation at a regular rate).			
Until user agents can easily stop pages from refreshing, do not create periodically auto-refreshing pages.			
Until user agents can stop auto-redirect, do not use markup to redirect pages automatically. Instead, configure the server to perform redirects.			
Until there is a way to turn off spawned windows, do not cause pop-ups or other windows to appear and do not change the current window without informing the user.			
Use W3C technologies when they are available and appropriate for a task and use the latest versions when supported.			
Avoid deprecated features of W3C technologies.			
Divide large blocks of information into more manageable groups where natural and appropriate.			
Clearly identify the target of each link.			
Provide metadata to add semantic information to pages and sites.			
Provide information about the general layout of a site (e.g., a site map or table of contents).			
Use navigation mechanisms in a consistent manner.			
If you use tables (Priority 2)	Yes	No	N/A
Do not use tables for layout, unless the table makes sense when linearized. Otherwise, if the table does not make sense, provide an alternative equivalent (which may be a linearized version).			
If using a table for layout, don't use any structural markup for the purpose of visual formatting.			
If you use frames (Priority 2)	Yes	No	N/A
Describe the purpose of frames and how frames relate to each other if it is not obvious by frame titles alone.			
If you use forms (Priority 2)	Yes	No	N/A
Until user agents support explicit associations between labels and form controls, ensure that the label is properly positioned (for all form controls with implicitly associated labels).			
Associate labels explicitly with their controls.			
If you use applets and scripts (Priority 2)	Yes	No	N/A
For scripts and applets, ensure that event handlers are input device-			

independent.			
Until you can allow users to freeze moving content, avoid movement in pages.			
Make programmatic elements such as scripts and applets directly accessible or compatible with assistive technologies (Priority 1 if functionality is important and not presented elsewhere, otherwise Priority 2.)			
Ensure that any element with its own interface can be operated in a device-independent manner.			
For scripts, specify logical event handlers, rather than device-dependent event handlers.			

Priority 3 Checkpoints

General Guidelines

Use this checklist to evaluate the accessibility of ACCESS-EGOV for Priority 3.

In General (Priority 3)	Yes	No	N/A
Specify the expansion of each abbreviation or acronym in a document where it first occurs.			
Identify the primary natural language of a document.			
Create a logical tab order through links, form controls, and objects.			
Provide keyboard shortcuts to important links (including those in client-side image maps), form controls, and groups of form controls.			
Until user agents (including assistive technologies) render adjacent links distinctly, include non-link, printable characters (surrounded by spaces) between adjacent links.			
Provide information so that users may receive documents according to their preferences (language, content type, etc.).			
Provide navigation bars to highlight and give access to the navigation mechanism.			
Group-related links, identify the group (for user agents), and, until user agents do so, provide a way to bypass the group.			
If search functions are provided, enable different types of searches for different skill levels and preferences.			
Place distinguishing information at the beginning of headings, paragraphs, and lists.			
Provide information about document collections (i.e., documents comprising multiple pages.).			
Provide a means to skip over multi-line ASCII art.			
Supplement text with graphic or auditory presentations where they will facilitate comprehension of the page.			
Create a style of presentation that is consistent across pages.			
If you use images and image maps (Priority 3)	Yes	No	N/A

Until user agents render text equivalents for client-side image map links, provide redundant text links for each active region of a client-side image map.			
If you use tables (Priority 3)	Yes	No	N/A
Provide summaries for tables.			
Provide abbreviations for header labels.			
Until user agents (including assistive technologies) render side-by-side text correctly, provide a linear text alternative (on the current page or some other page) for all tables that lay out text in parallel, word-wrapped columns.			
If you use forms (Priority 3)	Yes	No	N/A
Until user agents handle empty controls correctly, include default, place-holding characters in edit boxes and text areas.			

4.8 Feedback from eGovernment Best Practices

E-ISOTIS

INFORMATION SOCIETY OPEN TO IMPAIRMENTS

FEEDBACK FROM EGOV BEST PRACTICES

REPORT

-- DRAFT 0.1

10/05/06

ACTION	NAME	SIGNED	DATE
PREPARED BY:	Smaragda Paximada Elena Apostolopoulou Nikolaos Floratos Karel Van Isacker		03/04/06
REVIEWED BY:	Karel Van Isacker		10/05/06
AUTHORISED BY:	Zoe Apostolopoulou		10/05/06

Executive summary

This document has as starting point to investigate what user requirements have been collected so far in other eGovernment projects, and have been made publicly available. This approach was followed to avoid any duplication of effort, and build on the experience already accrued from other projects.

In this respect, we were able to collect material from a number of eGov inspired projects such as ICTE-PAN, eGOV, EURES, etc. However, not all related projects that were investigated provides their user requirements deliverables online as a public deliverable. They were however all contacted and requested for their public deliverables.

The document provides an insight in what is absolutely needed for end-users in order to make eGOV services worthwhile, helping to better understand also the minimum required services specifications that will have to be applied in ACCESS-eGOV.

Introduction

The provision of integrated eGovernment services is a main concern within Europe since it aims at not only at smoothening the internal operation within public administrations, but also between citizens and public administrations, and if possible even cross-border. In this respect, e-ISOTIS undertook the exercise of investigating the various end-user requirements that have been collected so far by other FP5 and FP6 projects, and that specifically address the issues which are also addressed by ACCESS-eGOV, allowing to extend the own research and analysis with already existing material.

Investigated Projects

Methodology Applied

From IST Web, we identified 84 projects that were Government related, of which 13 were related to eGovernment. From these projects, we short listed 12 projects that were addressing Access-eGov objectives to a small or large extent, identified their public deliverables on user requirements and extracted the requirements that will also affect ACCESS-eGOV. Where this was not publicly available, the project coordinators have been contacted to obtain the user requirements deliverables.

Following projects were assessed in terms of user requirements:

- eGOV project (IST-2000-28471) - An Integrated Platform for Realising Online One-Stop Government- had as main objective to specify, develop, deploy and evaluate an integrated platform for realising online one-stop government. This platform allowed the public sector to provide citizens with information based on "life-events", hence increasing its effectiveness, efficiency and quality of services. (<http://www.egov-project.org/>)
- ICTE-PAN (IST-2001-35120) -Methodologies and Tools for Building Intelligent Collaboration and Transaction Environments in Public Administration Networks- aimed to develop an innovative methodology for modelling PA operations and tools for transforming these models into design specifications for e-Government environments automating and simulating complex bureaucratic processes. Furthermore, meta-tools and peripheral software components were developed for implementing the design specifications into interactive and intelligent web-enabled portal environments that improve user access to information and facilitate contacts, exchanges and feedback within administrations. (<http://www.eurodyn.com/ictc-pan/>)
- TERREGOV (IST-2002-507749) -Impact of eGovernment on Territorial Government Service- addresses the issue of interoperability of eGovernment services for local and regional governments. The Project integrates the dimensions of technological R&D, pilot applications involvement and socio-economic research in order to offer a European reference for the deployment of interoperable eGovernment services in local governments. (<http://www.terregov.eupm.net/>)
- SMARTGOV (IST-2001-35399) -A Governmental Knowledge-based Platform for Public Sector Online Services- aims at specifying and developing a knowledge-based core repository for governmental transaction services, and at specifying and developing the SmartGov services and applications for creating and maintaining e-services and for communicating with installed IT systems, while also investigating process models for the public sector and relevant social aspects in order to deploy the SmartGov platform and realise its full potential. (<http://www.smartgov-project.org/>)

- USE-ME.GOV (IST-2003-002294) -USability-drivEn open platform for MobilE GOVERNment- focuses on a new open platform for mobile government services, supporting usability, openness, interoperability, scalability, thus facilitating service deployment and access, as well as attractive business models satisfying service providers, public authority and citizens. (<http://www.usemegov.org/>)
- EUSER (IST-2002-507180) -Evidence-based support for the design and delivery of user-centred online public services- aims at enhancing the capacity of the IST programme to achieve its goals in relation to stimulating the availability and usage of useful and easy to use online public services. They do this by addressing user needs that cut across different IST fields, including different application and service domains and different technology fields, namely on online public services in the following services domains: eGovernment, eHealth, eLearning. (<http://www.euser-eu.org/>)

More projects were envisaged, however in most cases their “public deliverables” were not made publicly available. In this respect following projects were contacted (using either details provided on the project website if available, or via IST Web contact form):

- ONTOGOV (IST-2002-507237 - Ontology enabled E-Gov Service Configuration): request for their “D4: User Requirements & Specifications”. (<http://www.ontogov.com/>)
- KIWI (IST-2001-35247 - Building Innovative Knowledge Management Infrastructures Within European Public Administrations): request for their "D1.1 User Requirements Analysis". (<http://www.ist-kiwi.org/>)
- VISUAL ADMIN (IST-2000-28248 - Opening Administration Information Systems to Citizens) (<http://www.visual-admin.net/> - no longer valid)
- E-MUNIS (IST-2001-33037 - Electronic Municipal Information Services - Best Practice Transfer and Improvement Project) – *bouncing e-mail* (<http://www.emunis-ist.org/> - no longer valid)
- CITATION (IST-2000-29379 - Citizen Information Tool in smart AdministraTIONS) (<http://www.citation-eu.org> – no longer valid)
- CB-BUSINESS (IST-2001-33147 - CROSS-BORDER BUSINESS INTERMEDIATION THROUGH ELECTRONIC SEAMLESS SERVICES) (<http://www.cb-business.com/>)

Overall results

Overall analysis of the collected requirements indicated following concerns, both from the end-users side (citizens), as well as the public servants:

- the compliance with legal aspects of the online provision of public services was a major concern, and more specifically because of the sensitivity of data that would be treated online;
- processes either appear as structured, semi-structured or totally unstructured, however all should be supported;
- the reengineering of existing processes was also to be considered in order to optimise the existing ones for an online implementation, at the same time streamlining them, and take out any hurdles that were incorporated in the past;
- the possibility of the not only carrying out predefined processes, but also to generate new process models, according to the specific needs of the users, requiring where needed workflow generators and supporting engines;
- an important element was to ensure that all generated platforms had to offer the possibility to be fully integrated with legacy systems already residing in the

back-office, addressing the variety in supported standards, ranging from mainframe to the integration with webservices, while also supporting as much as possible existing communication environment (groupware, etc.);

- ensure that communication is supported not only within, but also with outside parties (other public administrations, regional, national or where possible even international);
- and last but not least, all created environments must have a user-friendly interface and process that will allow a minimum of required training, and that will ensure that both citizens as well as public servants can use the services without any difficulty.

These results were expressed most overtly by the eGOV, ICTE-PAN and EUSER projects, since they all three more or less aimed at developing an integrated environment that would allow the seamless integration (with existing legacy systems) of eGovernment services through an automated workflow, while ensuring that its use was user-friendly and addressed the needs of both the public servants and the citizens.

In this respect, following images as were presented in “D1.1: eUSER Conceptual and Analytical Framework –first version–“ of the EUSER project depict adequately the various key-stakeholders that play an important role in the provision (supply) and use (demand) of public services, and their responsibilities. The very same images are also applicable to ACCESS-eGOV.

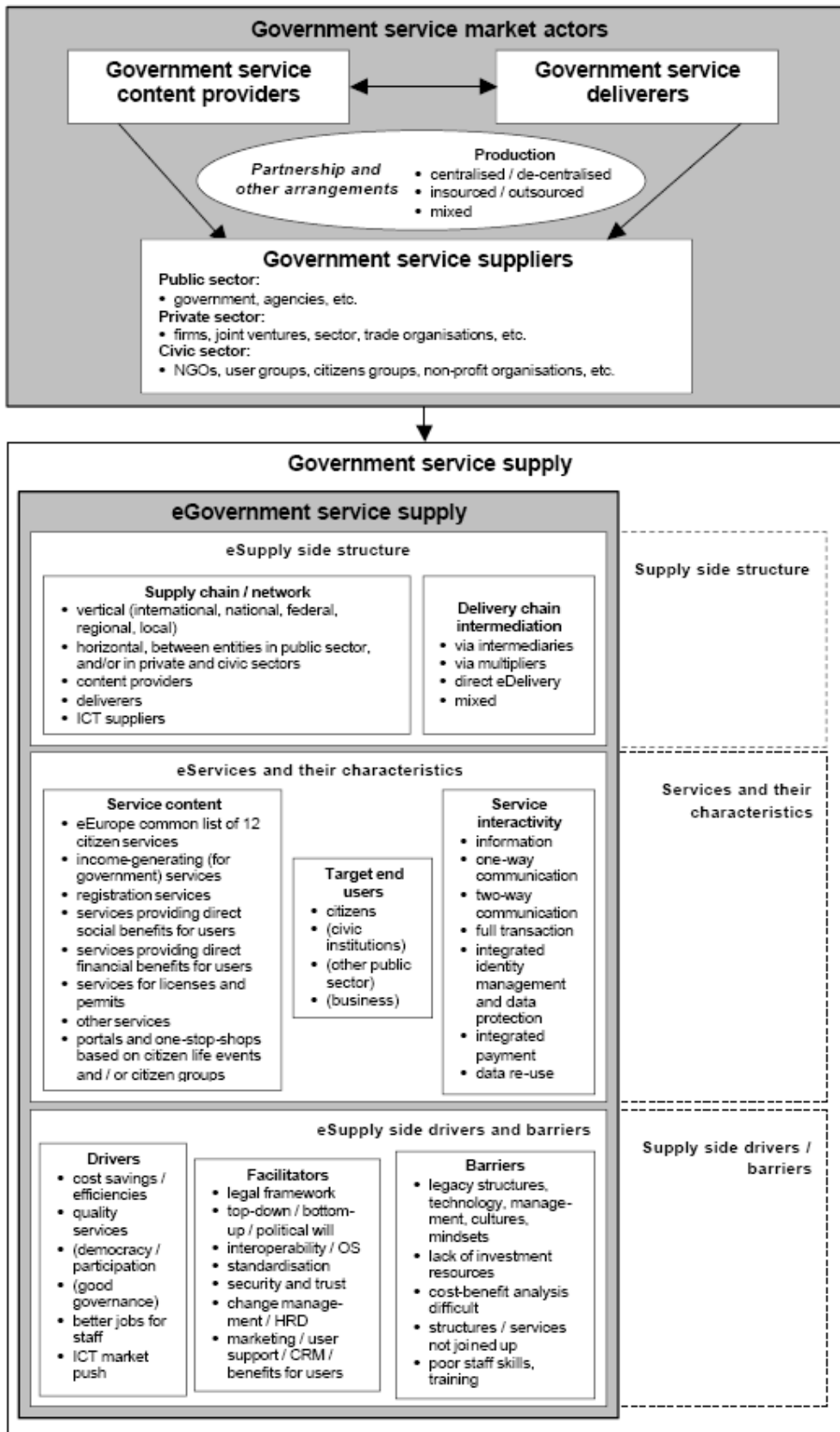


Figure 4-1: eGovernment Supply Side Analysis

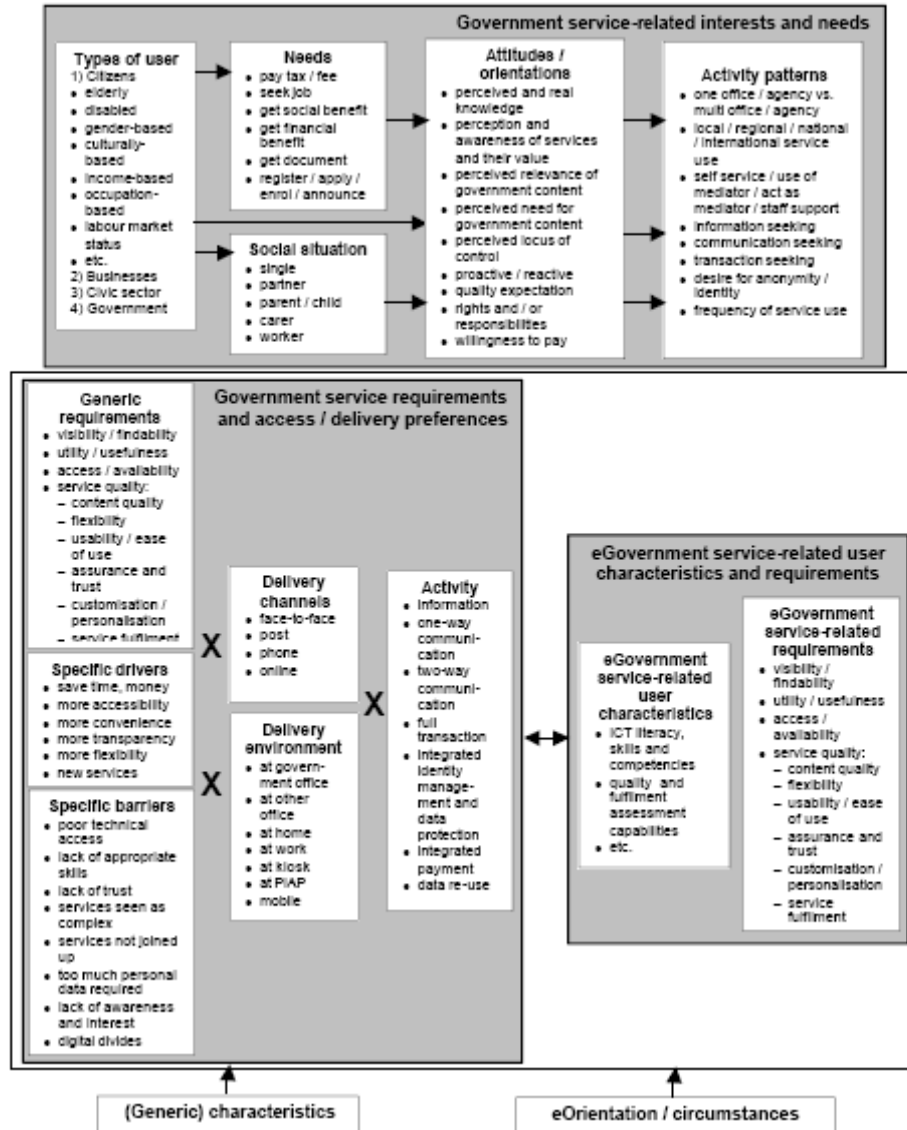


Figure 4-2: eGovernment Demand Side Analysis

With regards to the accessibility of the services for socially disadvantaged groups (elderly, people with disabilities, etc.), we would like to refer to studies undertaken by Mikael H. Snaprud⁸ on eGov services that resulted in following outcome:

- Less than 40 % of the Public sites in Europe use the DOC-tag which is crucial for automatic processing of document properties.
- Less than 2 % of the public online information is conform to the HTML standard.
- About half of all public internet sites have less than 20 HTML Errors to correct to comply to the standard.
- Considerable language barriers in Europe limiting the use of electronic information. English is the most frequently used foreign language. However, less than half of the EU population are able to speak English.
- Automatic detection of user preferences, allowing the server to present the appropriate language version of the information, would be useful. Less than 4 %

⁸ Associate professor in ICT at Agder University College who has published papers on computer science, control engineering and Internet Accessibility.

of the servers presenting European public content currently provide this information in the HTTP header.

- More than every fourth public web site in Europe does not declare any content length.

Furthermore, the report “eAccessibility of public sector services in the European Union” (November 2005)⁹ provides a very good and detailed insight in the current status of accessibility among public websites. Rather than duplicating all the findings of this report in this document, we present the main findings (actually, they are technical coding priorities that have been identified for all EU member states) that should also be taken onboard in Access-eGov (see also the earlier provided accessibility checklist):

- Provide effective text alternatives for all images and image map hotspots.
- Discontinue the use of frames, and instead use CSS and server-side scripting.
- Create HTML code that validates, and discontinue the use of deprecated HTML features.
- Ensure the site works without requiring the use of a mouse.
- Warn users if links are set to open in a new browser window.
- Code content structures correctly.

Overall, the developers of eGov services should thrive to meet all accessibility guidelines (W3C WAI) when developing public services websites, hence making all public sector websites in the EU conform with WCAG 1.0 Level Double-A by 2010. This is a must taken into account the i2010 strategy to promote an inclusive European information society.

Specific Requirements

The studied public deliverables, and in particular eGOV’s “D121 – Services and process models functional specifications” allowed to make following user requirements collection:

The development of online public services and their delivery through an Internet portal, functioning as a single point of entry to governmental services and through which users can access information and services from a variety of sources, needs to comply with the following principles:

Citizen centric service offering, achieved through joined-up government services that span more than one agency or levels of government and revolve around the needs of citizens and businesses.

Instead of the user being confronted with a forest of eGov services, the aim should be to provide an integrated composite set of services (which can interoperate), within the same but also in different administrations, seamlessly interlinked, and resulting in a one-stop-shop service shopping experience. Seamlessly since the user should not know that different services run within the same administration or among different administrations. On the contrary, department boundaries must remain invisible to the service customer.

This seamless integration does require that data and information can be exchanged and processed seamlessly across the various administrations, and in the context of ACCESS-eGOV even among administrations in different countries.

As eGOV described it, “Interoperability is a key enabler of e-Government and developing this ‘back-office’ capability is essential for successful government portals.”

in this respect, all projects do address the need for standardisation (e.g. data collection and process standards, but also in workflow process descriptions) because this is crucial in

⁹ www.cabinetoffice.gov.uk/e-government/eaccessibility

establishing this interoperability and collaboration across the various involved administrations of different public agencies, avoiding thus duplication in data capture, updating and purchasing.

Efficiency of online government services, through the simplification and rationalisation of current administrative processes.

Both eGOV and ICTE-PAN project emphasised the importance of transferring current processes within administration from an AS-IS to a TO-BE situation when adapting current processes for eGovernment purposes. In this respect, existing processes will need redesign and optimisation, to ensure that the resulting optimised simplified services fully meet the user needs, via citizen-centric portals delivering interactive content and transactional applications.

To ensure this optimisation, reviewing and eliminating unnecessary processes will be essential before services can reach the web, and must result in the overall improvement of current processes, reducing time and need for manual operations and paper handling, as well as the sharing of resources of common interest among government agencies.

Access to online government information and services should be facilitated.

eInclusion should be stimulated for eGov services, ensuring that not just those who are the easiest to reach (digitally literate) have access to the services, but also the more challenged groups. Government should understand the attitudes of reluctant and inexperienced users (such as elderly or people overall deprived from Internet access and ICT education), including those with special needs, in order to attract them to online services. Assisting technologies should be adopted in order to open public eServices to those with impairments.

An important aspect addressed by most projects was the multi-channel delivery option. While this was addressed in detail by USE-ME.GOV (mobile eGov services), it also opens more opportunities and ways of accessing the services for those not possessing a PC, etc.

Provision of reliable information and services anytime, anyhow, anywhere should be guaranteed. - Security

The provided services need to offer an ease of use in terms of availability, since end-users, especially businesses, want to be able to access the services anytime anywhere. This availability requires a stable and solid environment where end-users can “shop” for eGov services in a secure way, while also being protected by potential attempts from third parties to break into the system or extract data. Finally, possible points of failure have to be identified and safety solutions have to be foreseen to counter any possible attack.

Security overall was recognised in all projects as a *conditio-sine-qua-non* if a service and online transactions in general were to be trusted by the end-users.

eGOV identified it as following: “Specific solutions have to be implemented in order to provide a trusted, secure communications and transaction environment. The privacy of sensitive information, such as personal information or financial data of the users must be secure and access to services must be backed by systems that are reliable. Data must be protected at two stages: during transmission and within the database. During transmissions such as the submission of a credit card number, data can be vulnerable: as individual “packets” of data pass from sender to receiver, they can be intercepted or monitored at any point. To securely exchange data over the Internet, some form of encryption process should be in place (e.g. Secure Socket Layer protocol, SSL).”

Based on the above, we suggest that the questionnaire to collect further user requirements is expanded with the following table:

eGovernment service sophistication	eService characteristics													Core User issues												
	Content		Context			Pro-vider		Initiation & control				Delivery environment				Service quality										
	Administration	Everyday life	Single eService	e Portal (integrated multi-services)	Also needs non-eChannel	Public sector	Partnership	Agency pro-active	User self-service	User customisation	Intermediary	Home	Work	Government office	PIAP	Kiosk	Mobile	Visibility / findability	Utility / usefulness	Access / availability	Content quality	Flexibility	Usability / ease of use	Assurance / Trust	Customisation	Service fulfilment
Information																										
One-way communication																										
Two-way communication																										
Full transaction																										
Identity management																										
Payment																										
Data re-use																										

This will ensure a better understanding of the user needs and pinpoint potential problems, taking into account the past experience from FP5 and FP6 projects.