

UNDERSTANDING PROCESSES IN eGOVERNMENT: INTEGRATING HIGHER EDUCATION AND LIFELONG LEARNING IN AN INTERNATIONAL BLENDED LEARNING PROGRAM

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Abstract: eGovernment seems to be a popular answer to the tough demands for change on the public administration of today. But eGovernment cannot be efficiently and effectively be integrated into the public institution, if there is no understanding of the underlying processes and the ways of enhancing them with modern Information and Communication Technologies. Hence, public administration institutions have a high demand for a sustainable qualification of current and future employees. This paper works out an eGovernment qualification program on the basis of a blended learning arrangement. It integrates four educational dimensions (intersectoral, interdisciplinary, international education and different learning arrangements) in a holistic approach and proposes a pattern based approach as a tool for the designer of a concrete qualification program. The overall concept presented here derives its basis from the empirical case-based research in the EU TEMPUS TACIS SCM project IQeG – Integrative Qualification in eGovernment (No. SCM-T037A05-2005). The findings show, that it is possible to implement an integrative eGovernment qualification program in the near future by using the courses designed as additional courses in present higher education institutions. Nevertheless it should be possible to further enhance the concept and build up an international eGovernment executive master program building upon the results of this paper.

1. Motivation and Objectives

The professionalization of administrative structures and processes is a quest pursued by many public institutions in the western and eastern hemisphere. Public administrations on the local, intermediary and governmental level need to become more efficient and effective, since they are all facing a situation best to be described as a trilemma:

- 1) Effects of globalization both on society and on company level demand new, flexible and transparent administrative processes and international awareness by the process owners;
- 2) Accompanying the generally decreasing employment numbers, the average age of staff is high with substantial amount of employees close to retirement, which demands fast solutions for tacit and explicit knowledge exchange and documentation;
- 3) The modern information and communication potentials related to Internet technology and the growing claims by digitally literate citizens demand new process skills and media competencies within administrations.

eGovernment seems to be a popular answer to these problems among public administrations around the world. For the public administrations and their consultants this term refers to a set of actions determined to use modern Information- and Communication-Technologies (ICT) as a means to enhance processes of information, communication and transactions within the public institution as well as between the public administration and citizens (G2C), business companies (G2B) and other public institutions (G2G). Thereby eGovernment is building upon principles from the domain of eBusiness and uses and adopts experiences from that field. Especially the core subject of process management is particularly relevant for both domains, since the leverage effect of modern ICT can only be fully reaped when underlying organisational processes are documented, understood and properly coordinated with the organisation's IT strategy. Hence, for its sustainable introduction, eGovernment needs a broad offensive for public *administrative process codification* (to achieve a sustainable knowledge cycle), *understanding* (to develop a process management culture) and *reengineering* (to improve processes and adapt for eGovernment purposes). Additionally, the focus on process management in the domain of eGovernment seems to benefit the building of a professional, impartial and transparent public institution, being the general aim in the domain of public administration, since:

- the codification of processes makes administrative rules and procedures transparent;
- the permanent process quality control by process owners and independent assessors lays the ground for impartial decisions;
- the deeply rooted process management thinking, accompanied by ongoing process improvements, creates a professional and stable functioning public administration.

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The question arising now is how to implement process management and the necessary underlying thinking in today's public administration organisation. For the authors this problem can only be tackled by creating the right mindset first and then establishing adequate methods and tools for the concrete implementation. Since this can only be reached by carefully designed and well-tutored, intentional learning actions of current and future public administration employees, a process oriented, integrative Blended Learning Program is presented in this paper. For the case of a modern eGovernment qualification program it is blending four dimensions intelligently into a holistic approach:

- Intersectoral Dimension – Higher Education and Lifelong Learning are to be integrated;
- Interdisciplinary Dimension – the domains of Public and Business Administration and (Business) Informatics are to be dealt with;
- International Dimension – globalization demands an international approach to the topic;
- Educational Dimension – different forms of learning arrangements have to be integrated.

The empirical foundation for this approach has been derived from the project IQeG “Integrative Qualification in eGovernment”, a project funded by the European Union within the TEMPUS TACIS SCM framework (Funding No.: SM_SCM-T037A05-2005), where major ideas could be tested and enhanced by the discussion of partners from higher education institutions and public administration at the three sites St. Petersburg (Russian Federation), Kaunas (Lithuania) and Dresden (Germany). These experiences are drawn out in the following chapter and consolidated in an eGovernment qualification program in chapter 3.

2. Experiences from the Project IQeG

The project IQeG – Integrative Qualification in eGovernment (Duration: 2005/10/15 – 2006/10/14) is sponsored by the European Commission in the framework of the Trans-European Mobility Scheme for University Studies 2000-2006 (TEMPUS III) as a Structural Measures (SCM). The projects in this framework are intended to be short term interventions to tackle an identified problem in an EU partner country through the transfer of experiences from EU member countries. The rationale behind the project IQeG is to tackle the problems of Russia within the domain of eGovernment and address specified problems by intensive training of current and future public administration employees in order to compensate their initial lack of skills. When working out the project proposal it has been analysed that the solution of these problems cannot be implemented without the active involvement of higher education institutions, while merely few of them are currently ready to offer comprehensive educational programs on eGovernment, neither in further education nor on a higher education level. Hence, the integration of efforts and the exchange of best practices with specialists from the countries, which already went a few steps ahead on the way, would further facilitate the process of eGovernment education.

Consequently, the project is aiming at the validation and export of existing didactical models and methods in case-based higher education in eGovernment from Technische Universität Dresden and Vilnius University, Kaunas Faculty to St. Petersburg State University. Through the project's work a lifelong learning concept in the field of eGovernment shall be designed and by this encourage the Bologna-Process in this subject.

2.1 eLearning and Virtual Collaborative Learning in the Project IQeG

The validation and export of the existing didactical models during the IQeG project has been split into two phases. During the first phase the use of eLearning for teaching basic knowledge in the fields of eBusiness and eGovernment has been tested. For that, a joint course of the participating universities has purely been held in the virtual classroom using the eLearning experiences of the project partners, captured in a concept called VCL.

VCL stands for Virtual Collaborative Learning and is defined as the learner-centred common solving of ill-structured, academic tasks in self-organized small groups, in which learners are commonly responsible for the success of the entire group and in which the learners within the groups communicate with each other using modern ICT most of the time. The characteristics of the VCL concept can shortly be described as follows (cf. Schoop et al. 2005):

- Heterogeneous groups (4-6 members) are formed, in which the students have to take over specific roles (project leader, researcher, writer, critic) and have to work collaboratively in a self-organized way;
- Complex problems with open solutions, embedded into an authentic cover story and designed as a business case study, are given as assignments;
- A VCL typically lasts about 3 weeks and demands a high weekly workload from students (on the average 10h per student and week; about 1 h per student and week for the coaching and assessing tutor);
- The evaluation of students is based on a mixture of group achievement, individual communicative performance, role fulfilment and intra-group self-assessment;
- Advanced information are provided for both students and tutors in forms of detailed guidelines, informing about the case, the roles, the tasks and the assessment criteria, and giving hints about potential drawbacks, conflicts and possible solutions for that and
- Intensive tutoring in forms of coaching, giving feedback and motivating, but not influencing or giving task solutions is applied.

Taking part in a VCL is demanding for the students, since they have to solve complex tasks in a tight collaboration with their team mates in the virtual classroom, i.e. mainly using ICT with all its communicative restrictions (e.g. meta-communication). In order to cope with that limitation and still reach the objectives set by the task, students have to learn to a) prepare arguments precisely, b) respect the group members with different opinions and c) solve conflicts quickly. The authors believe that these competencies are preparing the students well for the working environment in modern business and administration organisations.

In the concrete VCL of the IQeG project, six heterogeneous groups with six members (two students from each site) have been formed, mixing the students by criteria like experiences, age and sex. Due to the geographical distance between the three sites Dresden, Kaunas and St. Petersburg the students were forced to use ICT to work jointly on their task. This task was to work out the concept for an eMarket-Space, where business partners can exchange electronically using their internal eCommerce/eBusiness-Solutions. The groups were assigned different sectors (e.g. tourism, real estate market), had to analyse this sector's structure and propose an eMarket-Space solution for it. Therefore the students had to reflect on their existing knowledge of Business Administration and eBusiness and design and document an innovative concept. To summarize, the group work and the international cooperation made the VCL worthwhile for the students and enabled them for sustainable knowledge creation.

2.2 Procedural Model for Analysing Processes in eGovernment

While the first part of the IQeG project was dedicated to the basic understanding in the fields of eBusiness/eGovernment and purely held in the virtual environment, the second part of the project was held in a seminar-like form, present and on-site, and dealt with the methods and tools to implement eGovernment practically. Since the project rules only allowed for students from St. Petersburg to travel to Dresden, the number of students in the course was considerably smaller than in the VCL, but as well better to be worked with in a seminar-style workshop. During the four days of this workshop the students:

- got the procedural model for analysing processes in eGovernment developed at Technische Universität Dresden, Chair of Information Management presented by experienced students in the matter;
- practiced the procedural model in small, internationally mixed groups of 4-6 students on a simple, yet extensive case study of the internal administrative process of absence management (i.e. planning holidays of employees and their substitutes in a large public administration);
- presented their recommendations for improving the process of absence management and using an ICT-solution for it to the expert from the public administration of Dresden municipality.

Since the procedural model for analysing processes in eGovernment, developed at the Chair of Information Management at Technische Universität Dresden, is a very important part in a qualification program for eGovernment, the main facts about it are presented in the subsequent paragraphs (further reading in Kaniok, Lang-Koetz and Wendisch 2006).

A procedure model is a structured method, systematically applying principles, methods and tools on a certain problem (cf. Greiffenberg 2003). Therefore procedural models provide the idealized and structured programmes of work in an extensive project with their contents and their chronological order. The purpose of such structured methods is to provide a framework within which the responsible person can produce an effective solution to an organisational problem. In this case the procedural model shall facilitate the analysis, documentation and improvement of administrative processes taking the conditions of the public administration into account and heading for a stable introduction of eGovernment (see Figure 1). It has been derived from a joint project to introduce eGovernment in the municipality of the city of Dresden by the Chair of Information Management at TU Dresden and the IT-service division of Dresden Municipality. To scientifically stabilize the practice-oriented project, further phase patterns from the systems analysis literature have been inferred.

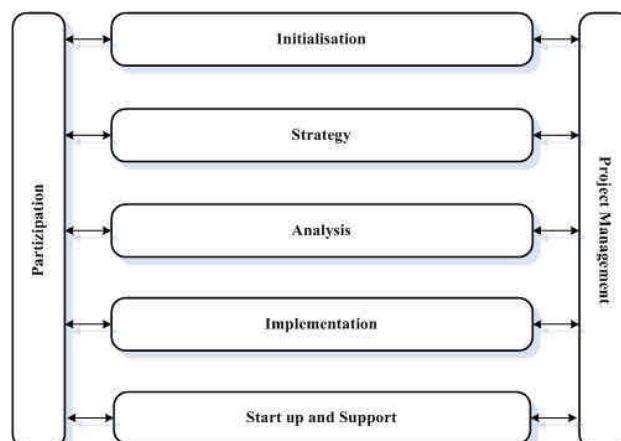


Figure 1: Five + Two Phases of the Procedural Model for Analysing Processes in eGovernment

It is important to note that the basic sequence of the procedural model presented in figure 1 is not rigid and unchangeable. Rather it is to be understood as an iterative and heuristic process, in which returns and loops are accepted for the sake of finding the best fitting solution to the problem dealt with. Nevertheless, the basic sequence enables a scheduling of the progress since in each phase an explicit and controllable intermediate result is to be achieved (milestones) (cf. Krallmann 1999).

The five basic and two accompanying phases are defined as follows.

(1) Initialization

The main activities in the initialization-phase deal with informing all stakeholders, exchanging ideas between all persons involved (e.g. in a Kick-Off Workshop) as well as building and qualifying an eGovernment team. It is important that all members of the eGovernment team are able to handle the modelling technique used in the particular project, since models will be the most important tool that the team will deal with. This is because models help to manage complexity and, therefore, to make substantiated decisions based on the well-understood and explicitly formulated essentials of the modelled situation (cf. Tudor and Tudor 1995). Finally, in the initialization-phase the whole eGovernment project-structure has to be arranged, which means that dedicated structures and work methods are to be created within the public organisation and with external partners.

(2) Strategy

In the second phase the processes already enhanced by ICT or public services available online already are identified, as well as the still-to-convert, online-able processes of the public administration (cf. Bundesamt 2005). In order to create a priority-listing of the identified set of processes they are evaluated with the help of a framework, derived from the administration's strategy covering its substantial tasks. Following the development of a strategy for the implementation of eGovernment, a guideline for informing all stakeholders is published.

(3) Analysis & Design

After the definition of the processes to be altered in phase two, the concrete process analysis and design follows. It is divided into two parts, elicitation (collection of data) and analysis (development of an as-is state documentation) of the process, and is followed by the design of improvement options by the eGovernment team. Finally, the as-is state documentation and the improvement options are merged into the target state document. The documents produced in this phase describe the so-called problem domain (the problem and its context) of the process dealt with (see Figure 2). It is important that the information obtained during the elicitation step (e.g. by reading documentations, observing practical application of the process or interviewing employees) and the model (as-is and target state documentation) created during the succeeding steps reflect the problem domain satisfactorily. This means that the employees working in the processes are convinced that the model is right and the eGovernment team is convinced that it is detailed enough for the following investigation.

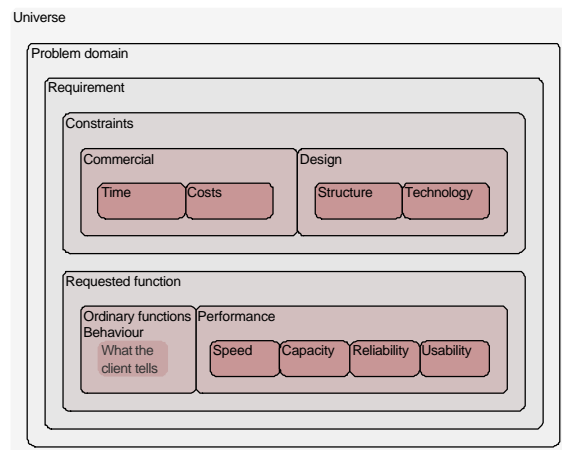


Figure 2: Structure of a Problem Domain

(4) Implementation

After it has been decided which improvement options are to be chosen and after this a final target state model has been designed, the implementation of this model follows. In this phase the eGovernment team has to include the top management of the public institution in order to organise the support for necessary organisational changes and to ensure that the right decisions upon the programming of the ICT solution are taken.

(5) Start up, Maintenance and Support

Having the new processes and ICT solution readily implemented, the transition from their piloting state to a working system state is done and all potential users of the process get access to it. From that point on, changes will only be done in the frame of a change management and defined change requests routines. Nevertheless, there should be a hotline support for users' questions about the new ICT or the underlying process.

(6) Project Management

Detailed considerations about the management of each project are a basis for its successful execution, since the individual subtasks, the persons and resources employed must be organized, planned, steered and controlled – the role of a project manager takes these functions. At the beginning of the projects he plans the resources needed during the project and supporting measures bringing it forward, manages the project during its lifetime and closes it down when a defined state is reached (cf. Becker, Kugeler and Rosemann 2000).

(7) Participation

It is essential for the success of the heuristic procedural model that all stakeholders of an eGovernment project are in some way or another participating in the project. On the one hand the communication or information exchange has been named already. On the other hand it is possible to include major groups of stakeholders into the decision processes within the five main stages presented above. All in all this is advisable because an eGovernment project heavily relies on the special knowledge of the process owners and users (i.e. the employees of the public administration) and it is vital to keep up their positive attitude towards the changes.

When discussing the procedural model for analysing processes in eGovernment presented above in the seminar with the students there has been the important argument that the introduction of eGovernment usually leads to substantial organisational changes in the public administration, which its employees are normally not used to. Changing the operational sequences from a manual, paper-based to an optimized electronic process demands a careful changing of employees' habits and therefore a lot of empathy by the eGovernment project team, especially when complete process chains are being restructured. Nevertheless, it can be highlighted, that optimizing processes is not a consequence of the introduction of eGovernment – it is a condition for it.

After the seminar in Dresden the students from St. Petersburg returned to their home institution, confronted with the task to apply the procedural model, which they had learnt about in more detail than could be presented here, in the municipal administration of St. Petersburg. This case study from the reality enhanced the understanding of the students about the subject substantially, what they demonstrated in a final presentation about the process of renting premises from the public administration and the improvement options worked out. All in all the seminar-style workshop, present and on-site, has been a very useful experience for students and teachers in order to deepen their already existing basic knowledge from the VCL and learn more about a hands-on approach (a concrete method and tool) towards eGovernment.

2.3 Designing Blended Learning Arrangements using the Pattern Approach

In the preceding chapters two completely different learning arrangements for studying aspects of eGovernment have been presented. From the experiences in the IQeG project and following Michael Kerres, the authors do not see the eLearning arrangement as a basically better alternative to on-site seminars or other conventional learning arrangements, as it has been stated quite frequently in the literature in the last years. Only a reasonable combination of different types of learning arrangements will reach sustainable learning results. Hence, a Blended Learning (bLearning) arrangement has to be designed taking the learning situation and the potentials of modern ICT into account, integrating selected ICT-tools where possible with established learning arrangements and considering didactical and economical aspects when creating a concrete bLearning module. For this three further factors have to be taken into account (cf. Kerres 2002):

- The meaning of on-site training sessions, where students are physically present, has changed. In a bLearning arrangement these sessions should open up a space for getting to know the other students, making commitments on how to work on the tasks and other motivational facets.
- In a bLearning arrangement it is not necessary to concentrate all learning elements in one medium like in a pure WBT setting. It has to be decided which learning element is offered in which part of the bLearning arrangement taking the efficiency of production and the possible effectiveness of learning actions into account.
- Intensive, personal and individual tutoring is essential for the success of the learner, since the complexity of the bLearning arrangement may hinder from reaching the goals.

Taking this into account the authors have developed a 'Four Phases Model' for the structure of a general bLearning arrangement (cf. Schoop and Gilge, 2006) (see Table 1) and present the suggested eGovernment qualification program in the subsequent chapters on the basis of this structure.

The last years of the authors' work in structuring bLearning arrangements have shown that it is a quite complex task to design them for efficient and effective learning. It is especially complicated to reuse the experiences made, since even a proper documentation of the steps taken cannot easily be transferred to the design of a new bLearning arrangement. Taking on this problem a pattern based approach to design learning arrangements has been developed at the Chair of Information Management (for further reading Bukvova 2006).

Table 1: Four Phases Model for a general bLearning Arrangement

Phase (Student Workload)	Form and Contents of Learning
❶ Information (~3 hours)	Website Information and Kick-Off Lecture containing: - organisational announcements; - an introduction to the concept of Blended Learning; - a presentation of the WBT software to be used; - the definition of essential terms of the domain dealt with.
❷ Self-guided Learning (~20 hours)	Individual self-guided, self-paced learning using the Learning Material (Online or Offline) provided. Additionally an Internet based forum can be used for discussing the contents between the students and for posting organisational messages. (Variably settable degree of tutoring.)
❸ Workshop (~20 hours)	Solving the complex problem of a task given in the Learning Content either individually or in small, self-organised groups, by working out a 5-10 page assignment. Presentation and discussion of the assignment in a workshop (seminar-style), enriched by lectures systemizing the domain dealt with. (Variably settable degree of tutoring.)
❹ VCL-Session (~50 hours)	Kick-Off lecture for a Virtual Collaborative Learning Session as presented in chapter 2.2 followed by self-organized group work, in small groups (5-6 team members), mainly using ICT for solving ill-structured tasks and documenting findings, lasting 3-4 weeks. (High degree of tutoring.)

The idea of the pattern approach dates back to the 1970s. It is attributed to Christopher Alexander, who has first used it in architecture. The shift from architecture to other areas, pedagogy and the design of learning arrangements being one of them, began in the 1990s when the pattern approach has first been used for the object-oriented software engineering. Nevertheless, the basic understanding in all fields can always be found in the Alexandrian definition of patterns as “a unitary phenomenon of activity and space, which repeats itself over and over again, in any given place, always appearing each time in a slightly different manifestation” (Alexander 1979, p. 181). Alexander believes that these recurring phenomena can be captured and described as systems of forces in a particular context. Furthermore, it is possible to portray a solution, which resolves the forces and which can be used repeatedly in any similar situation. An Alexandrian pattern consists at least of three parts (cf. Alexander 1979, pp. 249-253): context description, system of forces and the solution, resolving the forces (see Figure 3).

PATTERN NAME	
Context	Describes the context in which the problem occurs.
Forces	<ul style="list-style-type: none"> • Here are the forces enumerated, that occur in the problem. • To make the single forces more visible, a bullet list is used.
Solution	Resolves the forces of the problem. The essential points are written in bold case , to make the reading easier.
Discussion	Discussion of the practical use of the pattern, possible problems, consequences etc.
References	See also: Refers to related patterns from the same set of patterns. Compare: Refers to related patterns that can be found in other set of patterns, with appropriate reference. Compare further: Refers to related literature.

Figure 3: Example pattern (extended Alexandrian version)

Alexander stresses the important fact that using the same patterns does not necessarily result in creating identical architectures. This, for one, lies in the Alexandrian formulation of pattern solutions, which tend to be guidelines, more than instructions. Moreover, the situation, in which a pattern occurs, almost never repeats itself in exactly the same way. Though there may be similarities, which allow the use of one solution, two contexts will never be identical. Since patterns interact with their context, the results will always be unique. To illustrate this, Alexander uses the SUNNY SPOT pattern, which calls for the creation of a warm, sunny place close to a house. In a row of houses, all facing south, this pattern will result in several more or less similar spots in front of the house. But for a house, which is situated in a different area, facing different direction, maybe having a different garden architecture, SUNNY SPOT will create a completely different place (cf. Alexander 1979, pp. 147-151).

Similarly this occurs in the educational context when designing a blended learning arrangement. Since a learning arrangement can build upon a broad variety of methods and theories, for a learning arrangement designer, who might not possess pedagogical background knowledge, the choice of the “right” theory or method is often highly subjective. He chooses frequently from techniques that are usually used by other educators in similar situations. Besides, the designer has mostly formed his or her own opinion about “good” and “bad” teaching, based on his or her own experience as a learner. An educational pattern should therefore not seek to provide a set of rigid instructions. Such a model would run a risk of being dropped completely, when its theories do not match the designer’s opinion.

Taking these requirements into account, the pattern approach can be beneficial for the design of a blended learning arrangement. Especially because the patterns provide general guidelines and inspiration, rather than actual rules, they can help the learning arrangement designer - without robbing him or her of the opportunity, to let his or her own ideas and opinions influence the teaching techniques used. Consequently, the authors aim at using the pattern approach for structuring complete blended learning arrangements and for designing the single parts of it. In the remainder of this paper this will be illustrated for the special case of an eGovernment qualification program. After a didactical introduction and the description of the different dimensions to be integrated, the whole blended learning program and some example patterns for selected learning arrangements will be presented.

3. Blended Learning for an eGovernment Qualification Program

It has been stated in this paper that eGovernment does not only bring new technologies into the public administration, but its efficient implementation often demands substantial alterations of processes and routines. Subsequently, the officials working in the municipalities currently or in future have to adjust to these changes, adopt new routines and sometimes even re-evaluate their position and their aims within the organisation. An appropriate blended learning program has to support these necessary adjustment processes of the current or future employees and thus increase the efficiency and effectiveness of eGovernment. When designing the qualification program it has to be kept in mind that the topic of eGovernment is a new and growing area, influenced by globalisation and international communities, in which the scientific research is strongly driven by the needs of the practice. Therefore it is important that the research findings taught in the program can directly be applied in practice. That, and the fact that eGovernment is a complex area with a high number of parties interested in the topic, creates the need for a set of complex educational methods.

First of all, the designer of the learning arrangement has to prevent a perception of “learning for learning’s sake” by the learners. This is particularly important for the motivation of adult learners, to whom education with no association to reality may seem worthless. In order to ensure the practical use of the facts taught, it is necessary to create a connection between the learning environment and the real world, and by that allowing the learners to create experience which is not only concerned with the learning material but with real world content. Consequently, the underlying didactical concept of *experiential or situative learning* demands an opening up of the learning processes to the real world and proposes three dimensions of openness (cf. Ramseger 1992):

- openness of content, meaning that content has to be linked to the reality;
- openness of methods, which suggest including experience and reality in teaching techniques;
- openness of the institution, meaning the acceptance of reality outside the educational institutions.

Secondly, in order to profit from the offer made by opening up the learning environment to reality, learners have to take the time to deal in depth with the learning material. Such a careful examination can be triggered by the didactical concept of *problem based learning*, which demands that every learner will be confronted with a complex problem to be solved. The task shall therefore be structured in a way, that new information have to be obtained and integrated with what is already known by the learner to a consistent solution of the problem. In this process the learners ought to formulate, examine and answer questions, draw conclusions, resolve inconsistencies, formulate and justify solutions and reflect on the learning procedure taken (cf. Johnson and Johnson 2001). The problems given as tasks shall therefore be:

- highly complex, meaning that there are many strongly interrelated subtasks with initially unknown cause-effect-relationships like in a realistic work situation;
- hard to split up, meaning that a holistic solution is necessary and only the sum of separate solutions of subtasks is not adequate;
- open with regard to the results to be delivered, meaning that there is no one best solution and the learner has to decide on many aspects by himself based on his research.

Thirdly, in order to not only train the learners’ factual knowledgebase but his behaviour in social situations too, the social interaction between the learners should explicitly be included into the learning arrangement. The didactical concept of *collaborative learning* proposes that the intense examination of a topic can further be enhanced, if the problems in the tasks given are worked upon commonly in a group of learners.

To summarize and enhance this short didactical introduction (for a consolidation see the pattern in Figure 4), the authors think that the bLearning program for eGovernment qualification to be designed has to meet the following requirements:

- considering a variety of learning styles and learning views;
- teaching of eGovernment specific knowledge and skills;
- promotion of practical experience in the qualification;
- teaching of higher order thinking and learning skills by assigning complex tasks;
- promotion of (international) cooperation among the learners and teaching cross cultural skills;
- motivation to further self-directed education.

In order to achieve that, the qualification program presented here integrates four separate dimensions:

- 1) Intersectoral Dimension – Higher Education and Lifelong Learning;
- 2) Interdisciplinary Dimension – different domains of study;
- 3) International Dimension – students from different international sites;
- 4) Educational Dimension – integration of different forms of learning arrangements.

COURSE	
Context	The subject matter chosen for a qualification program has to be further divided into even more specific COURSEs, in order to provide the learner with learnable portions.
Forces	<ul style="list-style-type: none"> • Learners need smaller portions of educational material to learn. • eGovernment describes some complex and broad areas. Dividing them into parts and teaching them separately could impair the understanding of the whole. • A qualification program has a certain educational aim. Dividing the subject matter into parts could endanger the achievement of this goal. • Particularly adult learners come have a different knowledge background. Some of the offered courses may not be interesting for them.
Solution	<p>Identify the knowledge or abilities the learner need to understand and solve the problem area, a particular qualification program is concerned with. Group them into logical clusters and teach the content of these clusters over a period of time. So created and taught COURSEs have to have a common aim: enabling the learners to handle the problem area of a qualification program.</p> <p>The connections between COURSEs will be stronger than by qualification program and have to be managed with particular care. They have to be actively integrated into the content and teaching process, in order to make sure, that the learner understands the complex problem area. The instructors should explicitly point out the connections out and frequently remind the learners of the whole context.</p> <p>Just like in the case of qualification programs, do not make all the COURSEs in one qualification program mandatory. Give the learners the opportunity to select topics, from a particular area of expertise, which interest or concern them. To control the workload of the learners, create a system (e.g. point system), which will make sure, that each learner has put in a certain amount of effort, to complete a qualification program.</p>

Figure 4: COURSE Pattern consolidating the Requirements for an eGovernment Qualification Program

3.1 Intersectoral Dimension – Integration of Higher Education and Lifelong Learning

When talking about the qualification in the field of eGovernment, it is important to look at the addressees of the blended learning program and their demands towards it first. The authors see the public administration institution and their current and future employees as the primary target groups. The public administration institution itself can be characterized by:

- An overregulated organisational structure;
- A decreasing employee number, fear of unemployment among existing workforce;
- An increasing employee age;
- Insufficient monetary resources, eGovernment-projects being in competition with other projects;
- Legal restrictions, with a lack of regulations in the field of eGovernment;
- An average education level that does not quite meet the demands of new technologies.

Nevertheless, the public institutions feel the high need for change, evident in catchwords like eGovernment or New Public Management, and therefore demand from a qualification program for current and future employees:

- A technology oriented education in eGovernment, for a deeper understanding of its opportunities and threats;
- An instruction about process management design and implementation methods and the training of necessary empathy for process management projects;

- Knowledge of economical and technical aspects of administrative processes and its needs (especially considering the differences between low and high complex processes);
- The development of service orientation, interpersonal skills and cross cultural skills.

In order to fulfil these demands and given the above demonstrated complexity and novelty of the topic of eGovernment, the authors believe that a learning arrangement in this field should be established at an institution of higher education. By that the results of the recent research work can directly be included into the qualification program and the high requirements can be met by experienced teachers and tutors. Consequently, one part of the primary target group of the qualification program, future employees of public administrations, can easily be reached since they are the students of the higher education institution. These young adults, whose main occupation is the participation in higher education, are seeking for an eGovernment education meeting the following criteria:

- Acquisition of knowledge and skills in eGovernment;
- Participation in interesting courses;
- Development of higher order thinking and learning skills;
- Preparation for a future job;
- Support for the personal development (for future career success);
- Completion of the study scheme enrolled in;
- Establishment of social contacts (private as well as connected to future career).

The second part of the primary target group of the qualification program is made up of the current employees of public administration institutions. They are integrated into the qualification program by offering it as a further education module to them and by this opening it up for individuals, whose main occupation lies in their employment. These so-called adult learners might be motivated to take part in the program, because further education plays an important role in the promotion – as public administrations tend to have strict hierarchies and often, to reach certain hierarchy levels, additional qualification is needed. The adult learners, public administrative officials in particular, pose the following demands on an eGovernment education:

- Educational contents related to their work;
- Training of media proficiency and new technologies;
- Suitable learning / teaching times;
- Use of classical learning media (e.g. books) or detailed explanation of new media (e.g. eLearning);
- Courses held in mother tongue;
- The qualification ends with an accepted certification.

Summarizing these facts it can be stated, that institutions of higher education (e.g. universities) offer research-based education in eGovernment and the public administrations have to some extent practical experiences from eGovernment projects, but are in need of training for their future and current employees. Hence, it lies at hand, that the cooperation of universities and public administrations in the area of eGovernment education offers substantial synergy effects. This cooperation has, on a strategic level, to be established by the public institution's recognition of the qualification program as an official further education module opening up career paths and by the inclusion of docents from the administrative practice on the side of the higher education institution. On an operational level the cooperation should be fixed by building mixed classes of students and adult learners.

This setting brings the advantage that both groups (current and future employees) learn about the same aspects and build up a common working language about the field of eGovernment. A possible later exchange will be much easier by that. Very important as well is that the students can learn from the adult learners' knowledge of practical conditions and limitations. Additionally this intersectoral integration can be strongly supportive for reaching a sustainable understanding of lifelong learning (i.e. the unceased learning throughout the whole lifespan), since the students are brought into an environment, where adult learning is perceived as a norm. This can later motivate the students to participate in similar educational offers themselves. The adults, on the other hand, are confronted with a social system, where learning is understood as an important assignment. Adult learners often see their jobs as their primary task and learning takes only a supportive role (cf. Long 1998). Being confronted with settings, where learning itself is of great importance may lead the adult learners to rethink their opinion of learning.

A pattern to help the learning arrangement designer with the intersectoral integration is demonstrated in Figure 5.

LEARNERS IN FOCUS	
Context	Learner centralisation is considered as very important in most modern pedagogical theories. But to be able to focus the education on the learners, it is necessary to know, who these learners are.
Forces	<ul style="list-style-type: none"> • The integrative approach covers three groups of learners: students, adult learners and international learners. This leads to a great variety. • The learner groups are also heterogeneous in themselves. • Different learners have different expectations and needs. • Older learners tend to differ from each other more than younger ones. Concentrating on the mean group may be insufficient. • Physiological variables (i.e. vision, hearing, energy, health), particularly by older learners, are not to be underestimated. • The LEARNERS IN FOCUS change according to the levels of qualification.
Solution	<p>Be clear, who are the learners who participate in the qualification. This is particularly important different learner groups are participating. If possible group the learners into homogenous clusters to make later analysis easier.</p> <p>On the COURSE level, however, particularly when not all COURSEs are compulsory, the learners divide into smaller, potentially more homogenous groups. The composition of learners in these groups does not have to correspond with that of the qualification program.</p>

Figure 5: LEARNER IN FOCUS Pattern for the Integration in the Intersectoral Dimension

3.2 Interdisciplinary Dimension – Integration of Different Domains of Study

It has been mentioned already, that the field of eGovernment integrates many different subjects. As shown in Figure 6 the topic can be placed at the intersection of domains such as public administration, business administration, business informatics and social disciplines, like pedagogy, psychology and sociology. Therefore knowledge and experiences from the fields described shortly hereinafter should figure in an eGovernment qualification program (for further reading see Bukvova 2006).

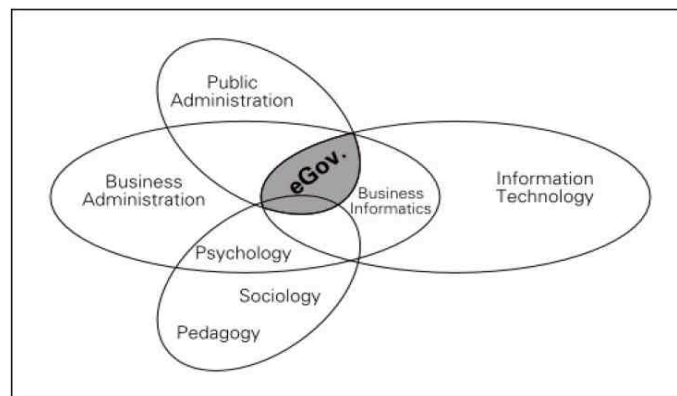


Figure 6: eGovernment at the Intersection of Different Domains

(1) Business Informatics

This discipline deals with business information systems, i.e. systems to support the entire process of handling information and acts as an intermediate between information technology (IT) and business administration assuring best possible application of IT in the management information flow. The following topics should be inferred for the eGovernment qualification program:

- process management and process orientation, including process modelling;
- document and content management;
- information management, including understanding of databases.

(2) Public Administration

For learners taking part in an eGovernment qualification program, it is necessary to understand the basic principles of public administration, like:

- legal and social foundation of public administration;
- finance issues in public administration;
- legal control of the administration;
- rights of the citizens;

- organisation of institutions of public administration;
- infrastructure of public administration.

Since the foundation of public administration is mainly given by laws of the particular country, country region or international community a basic legal education is of vital importance for the qualification program. Through the international dimension of the qualification program (Chapter 3.3) an overview over the international regulations and country difference can be provided.

(3) Business Administration

Because some methods and especially the economical thinking from the private sector have already found their way into the public area, it is recommended to include business administration education in the eGovernment qualification program. The choice of relevant topics depends on the content of public administration and eGovernment taught in the qualification. Potentially interesting might be:

- Finance and investment;
- Controlling, especially process controlling;
- Basic knowledge in statistics and econometrics, as surveys are often a part of eGovernment projects;
- Organisational design.

As another important topic, the topic of eBusiness should be considered, even if the methods and solutions used in eBusiness often cannot be identically used in eGovernment. There are however still similarities and the training in eBusiness and eCommerce support the understanding of the learners for the use of ICT in organisations.

(4) Information Technology (IT)

As it has been stated for the adult learners particularly, the knowledge of IT can have diverse significance for several groups of learners. It is therefore advisable to offer courses in this domain, since all learners need at least a basic knowledge in:

- Present day hardware (PC, Server) and their functionality;
- Internet technologies;
- Security issues.

(5) eGovernment

This part of the qualification program has to concentrate on the application of the knowledge learnt in the domains mentioned above. The learners should be given the opportunity of practical or practice-like experience with eGovernment projects. The task shall also be structured in a way, that the learners understand the unique characteristics of eGovernment and the restrictions and peculiarities of public administration (e.g. heterogeneous clientele, equal opportunities for all customers without the opportunity to choose “interesting” segments, monopoly position) (cf. Bruecher and Gisler 2002).

(6) Cross Cultural Education

Due to the aim of qualification approach to enhance the social skills of the learners, the following aspects of cross cultural education should be included into the curriculum:

- Cultural Perception – teaching that too quick categorising in order to simplify the perception process can lead to misunderstandings and problems in other cultural contexts;
- Cultural Self-Awareness – increasing the understanding of the features of the own culture to increase the abilities to cope with other cultures;
- Values – deepen the understanding of own values and increase the openness towards different values;
- Communication – training skills necessary for inter-cultural communication, like listening, perception control, seeking feedback, resisting judgemental reactions, cultivating self-awareness and taking risks;
- Foreign Languages – develop competencies to communicate in a foreign language.

(7) Soft-Skills

Besides acquiring knowledge and skills in the above introduced disciplines, the learners need to have also certain discipline-independent abilities to use in their later day-to-day life and work. These abilities are commonly called soft-skills and are often focused mainly on interpersonal contacts. Particularly relevant are:

- Communication skills – ability of expressing oneself comprehensibly and understanding messages received, by verbal and non-verbal elements;
- Presentation skills – mastering basic presentation skills, including the verbal presentation as well as correct use of media;
- Learning skills – understanding of learning processes and how to direct and manage them.

The authors acknowledge that not every student might need to study all topics presented here. Depending on the context, the individual learners and the aims of the qualification, only certain topics or their parts can be chosen. Since, however, each of these topics contributes substantially towards the topic of eGovernment it has to be

carefully considered on the basis of the individual learners' background which subject can be omitted. The pattern presented in Figure 7 may help with this task.

LEARNER'S BACKGROUND	
Context	The background of the participating learners will influence their needs and views on the qualification. It therefore has to be thoroughly explored.
Forces	<ul style="list-style-type: none"> • The LEARNER'S BACKGROUND depends on the LEARNERS IN FOCUS. • To choose suitable content and methods, the learners background has to be known. • Due to the variety of the LEARNERS IN FOCUS in integrative approach, the background of the learners will be highly complex.
Solution	<p>LEARNER'S BACKGROUND includes information like demographic data (i.e. age, mobility), professional knowledge (i.e. qualification, work experience), other knowledge (i.e. media skills, language skills) and motivation. The findings from LEARNER'S BACKGROUND have to be taken into account in further design.</p> <p>In the COURSEs, the learners separate into smaller groups and their background is more specific. In focus of the COURSE level is information that has direct connection to the COURSE. Of course, general information like demographic data has to be also considered. Particularly important is (especially, if the COURSE is not mandatory), why did the learners choose to attend the COURSE and what do they expect. The COURSE design can then be either adapted to the learners' expectations or it has to be attempted to adjust the LEARNER'S MOTIVATION. This can also be the case by compulsory COURSEs, or if the learners' expectations contradict the purpose of the COURSE.</p>

Figure 7: LEARNER'S BACKGROUND Pattern for the Integration in the Interdisciplinary Dimension

3.3 International Dimension – Integration of Students from different international Sites

Due to the increased internationalisation and globalisation of today's economy, there are many influences on the public administration institutions and the practice and research in eGovernment. Particularly research has profited since through academic relations between different countries research findings from eGovernment can be exchanged and examined easily. In the practice, the increased mobility of businesses and citizens calls for a higher international profile of public administrations. Besides, a certain pressure has been exerted on the states by international organisations and communities (e.g. EU, OECD). Therefore international cooperation and contacts have become necessary even in the area of public administration. Hence, it seems appropriate, that international cooperation will be included in the eGovernment qualification program, answering to the following demands posed by the primary target group:

- Learning about different cultures and the administrative services therein;
- Training of language skills in the foreign language of the partner or in the working-language English;
- Improvement of interpersonal skills, connected with the personal development for the international field;
- acquire new skills and knowledge, especially learning about best practice cases beyond state borders.

It has to be stressed that enabling cooperation between international learners throughout a qualification program and all its learning processes can be very difficult. Even if the interpersonal, inter-cultural and language issues are excluded, there are still many practical problems. On the one hand, the participants can be divided by considerable distances. On the other hand, time synchronisation can also cause substantial problems, due to for instance different time zones, time habits or working patterns. For this case, the authors see different forms of eLearning (Chapter 2.1) as a possible means to surpass these differences. The most important infrastructure for learning processes over distances to appear will be an eLearning platform that creates a common virtual environment where the learners and the teachers or tutors can meet (synchronously or asynchronously) and collaborate. One example could be a forum presented in Figure 8.

FORUM	
Context	In a FORUM, participants can exchange ideas and opinions in virtual environment.
Forces	<ul style="list-style-type: none"> • The content is potentially difficult to understand. • The topic is very broad and it is likely, that the learners will have further questions to it. • The topic is interesting and the learners will want to know more about it. • The INSTRUCTOR and/or other learners are interested in the learners work or ideas. • The learners should be confronted with different views. • The learners should be encouraged to explain and defend ideas in a well structured way. • The learners should practice their rhetoric skills.

	<ul style="list-style-type: none"> • The exchange of ideas leads to better understanding of the topic. • The exchange lasts over a longer period of time. • The learners have only a limited opportunity for a face-to-face interaction.
Solution	<p>In its essence, a FORUM is a form of an asynchronous DISCUSSION or a QUESTION-ANSWER SESSION in virtual environment. The learners write their views to a topic or comment on the ideas of others in the form of messages (posts). This does not happen synchronously, but over a longer period of time. Because the learners do not have to be present in one place at the same time, the exchange opportunities last longer and are more accessible.</p> <p>Because of the asynchronous character, FORUMs are not linear. That is, the participants can discuss several topics at the same time. To avoid confusion, proper structuring of the FORUM is necessary. A moderator in the virtual environment has to make sure, that the posts in the FORUM are associated with a correct topic and organised in threads.</p> <p>Learning to communicate in FORUMs also gives the learners the opportunity to learn to structure their ideas when communicating them.</p>

Figure 8: FORUM Pattern as an Example Element of an eLearning Platform

In order to trigger the collaboration of all students, regardless the distance between them, working groups with international students should be set up and assigned a common task that they can only solve collaboratively. By this they will search for the best means of communication provided and interact through the internet. The interesting side effect from using eLearning for collaborative learning processes is that it promotes media literacy and by that has a positive effect on the eGovernment qualification program itself.

3.4 Educational Dimension – Integration of Different Forms of Learning Arrangements

The requirements upon the eGovernment qualification program are quite multifaceted and need now to be integrated into a consistent activity chain. The authors therefore put forward the setup demonstrated in Table 2.

Table 2: Blended Learning Arrangement for an eGovernment Qualification Program

Phase (Student Workload)	Form and Contents of Learning
❶ Information (~5 hours)	<p>A Kick-Off Lecture is being held in English language by the head of the qualification program at his site and distributed via Videoconference to all other participating sites.</p> <p>Contents are:</p> <ul style="list-style-type: none"> - organisational announcements; - an introduction to the concept of Blended Learning; - a presentation of the WBT software to be used; - an introduction of the teachers / tutors of the program.
❷ Subject 1 and 2 Self-guided Learning (~2*20 hours), enhanced by classroom teaching (~2*10 hours)	<p>The students and adult learners use the Learning Material (Online or Offline) provided in national language for individual and self-guided, self-paced learning of the first 2 subjects selected from the list in Chapter 3.2 – for example business informatics and public administration.</p> <p>The self-guided learning is from time to time enhanced by traditional classroom teaching (lectures or seminars) at the national site of the learners in the national language. In these sessions, the students and adult learners are taught the national peculiarities of the public administration and eGovernment in their home country by experienced docents from a local public administration institution.</p> <p>There will be as well online lectures in English language about the subjects 1 and 2 that will be held by an expert from the participating institutions of higher education. His/her talk will be captured and transported via Videoconference to all other sites.</p> <p>The eLearning platform provides an internet based forum that can be used for discussing the general and national contents between all participants in English language and for posting organisational messages.</p>
❸ Workshop (~25 hours)	<p>After Phase 2 a common workshop is held, bringing all participants together in one place.</p> <p>The participants will have to prepare this workshop by studying the documentation about the procedural model for analysing processes in eGovernment presented in chapter 2.2.</p>

	<p>During the workshop small, internationally mixed teams of students and adult learners will collaboratively analyze, model and enhance key administrative processes from the administrative reality through the guidance of administrative practitioners.</p> <p>After the workshop the participants take these models to their home country, check them against the national practices in their local public administration by real interviews and refine them during a virtual discussion in an asynchronous forum. This refinement will be worked out in a 5-10 page assignment and aims at creating real eGovernment processes out of the processes regarded.</p>
<p>④ Subject 3 and 4 Self-guided Learning (~2*20 hours), enhanced by classroom teaching (~2*10 hours)</p>	<p>The students and adult learners use the Learning Material (Online or Offline) provided in national language for individual and self-guided, self-paced learning of the next 2 subjects selected from the list in Chapter 3.2 – for example business administration and IT.</p> <p>The self-guided learning is from time to time enhanced by traditional classroom teaching (seminars) at the national site of the learners in the national language. In these sessions, the students and adult learners are taught about cross-cultural education and soft-skills</p> <p>Accompanying, there will as well be online lectures in English language about the topic of eGovernment that will be held by an expert from the participating institutions of higher education. His/her talk will be captured and transported via Videoconference to all other sites.</p> <p>Again, the eLearning platform provides an internet based forum that can be used for discussing the general contents between all participants in English language and for posting organisational messages.</p>
<p>⑤ Workshop (~30 hours)</p>	<p>After Phase 4 a common workshop is held again, bringing all participants together in one (another) place.</p> <p>The participants will have to prepare this workshop by studying adequate literature about the design and programming of Online Learning Material.</p> <p>During the workshop the same international teams of students and adult learners as in phase 3 will collaboratively work out storyboards for small web-based training lessons on the eGovernment processes that they have worked upon before. The guidance of experienced administrative practitioners will ensure, that the groups are on the right track.</p> <p>The workshop ends with a Kick-Off Session for the succeeding VCL.</p>
<p>⑥ VCL-Session (~60 hours)</p>	<p>The groups in the VCL are the same groups as in the preceding phases.</p> <p>The task given to the groups is to refine the storyboards worked upon in phase 5 and create Online Learning Material about the processes regarded. Within the 3-4 weeks of the VCL, these Online Learning Material shall be refined to such a state, that it can be used to explain the eGovernment processes to public administration officials that could not take part in the qualification program.</p>

4. Conclusions

With the concept presented in the paper, the authors try to encapsulate the diverse requirements on an eGovernment qualification program that are demanded by the changing reality in modern public administration. The Blended Learning Arrangement set up promises to meet the different request but is not free from some preconditions.

On the one hand, offering education for adult learners, students and international learners requires a high level of flexibility from all participants and tutors. It might be difficult to organise a meeting on a single place in particular time – the concept has been tried to reduce this time, but does not, however, forgo this important social part completely. Additionally, the use of ICT can greatly increase the flexibility of education. However, it also poses requirements on the participants. Firstly, they have to be equipped with proper hardware and software. Secondly, the handling of these technologies requires a certain level of media literacy. It is therefore necessary, to make sure, that the learners have access to appropriate media and that they can use them. Problems with the handling of the hardware or software can be relieved through courses before the beginning of the qualification or by including the acquisition of such skills in the qualification content.

On the other hand, a qualification program that includes international cooperation among the learners can potentially lead to language problems. Long term cooperation is only possible, if the participants have at least one common language of communication. Learners, instructors and individuals responsible for the creation of

the qualification program need a good command of this language. At the moment, English is the most widely spoken (foreign) language and particularly in Europe, it is also the most likely language of communication. If a long term cooperation among the learners is planned in the design and particularly if mobility of the learners is intended, including language education in the qualification needs to be considered. Firstly, if learners are required to reside over a longer period of time in the partner country, knowledge of the country language can contribute substantially to a problem-free stay. Secondly, frequent interaction with learners with different mother tongue offers an excellent opportunity to master a new language on a high level of proficiency. Such chance has to be promoted and communicated to the learners.

When thinking about the actual introduction of the qualification program sketched in this paper, the authors can think of a three-phased mode. First, the single learning arrangements shown in chapter 3.4 can be used as additional courses to enhance existing study schemes at higher education institutions in the field of public administration or business informatics. Second, after that, it should be strived for creating an independent certificate module of the whole blended learning arrangement presented. The module should not only be recognized in the study schemes of the higher education institutions, but as well in the public administration human resources development schemes. Third, the whole qualification program should be further enhanced to an international eGovernment executive master program. Using the basis pointed out in this paper, additional topics and courses should be added in the same manner and offered on the market of international executive master education.

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