A Multi-Perspective Approach to Business Process Management in the Financial Sector

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A Multi-Perspective Approach to Business Process Management in the Financial Sector

Teaching Course

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Abstract

In academia, business process management (BPM) in general is a major topic in teaching and research for many universities worldwide with large research institutions and professorships centered on this topic. However, currently most educational programs on BPM only address actual process management capabilities and do not provide sufficient insight into different industrial sectors and their individual needs with regard to BPM. Banks for example have very specific requirements for BPM (e.g. compliance, risk management, industrialization etc.). As a result, we developed a specialization module combined with a project seminar on the topic of BPM in the financial sector for the Bachelor program in Information Systems at the University of Muenster, Germany. In this article, we argue for its necessity, present the intention behind it and its justification, as well as draft the actual course procedure, while also illuminating the results of our first evaluation of the 1-year Bachelor specialization module. With this paper, we aim at providing other lecturers with reasonable insights and our experiences in setting up a business sector oriented BPM specialization module.

Keywords: Business Process Management, Teaching Course, Bachelor Studies, Information Systems
Introduction

Business process management (BPM) has been a major issue in all institutions and enterprises for at least the last two decades with roots going back to the beginning of the twentieth century. Business process modeling can be seen as a way of capturing the implicit process knowledge of an organization and document it explicitly in a (semi)formal way. As a result, many companies have created literally hundreds of meters of “wallpaper” with process models in order to document, analyze and reorganize their internal processes.

In practice, the need for extensively analyzing business processes for multiple purposes is currently of major relevance in the financial sector (Becker, Weiß, Winkelmann 2010c; Becker et al. 2010b; Cocheo, Harris 2005; Harmon, Wolf 2008; IBM 2008; Papastathopoulou et al. 2001) and has become even more important due to the financial crisis. With the shared ambition among many banks to industrialize banking processes (Drake et al. 2009; Wilken et al. 2008), the need to model, document, analyze and hence manage the process landscapes of banks is omnipresent.

In academia, business process management in general is a major topic in teaching and research for many universities worldwide and there are large research institutions and professorships centered around this topic. There are numerous research institutions for business process management all over the world. For instance, many international universities such as the Queensland University of Technology in Brisbane, Australia, the European Research Center for Information Systems (ERCIS) at the University of Muenster, Germany, the Eindhoven University of Technology, Netherlands, or the Stevens Institute of Technology at the Howe School of Technology Management, USA, offer business process research and education opportunities within their large business process groups.

However, currently most educational programs on business process management only address the actual process management capabilities and do not provide sufficient insight into different industrial sectors and their individual needs with regard to process management. For instance, in the financial sector many legal directives for identifying and documenting risks have occurred during the last years. Companies are forced to carefully manage their process risks and to establish control instances (Weiß, Winkelmann 2011b). Hence, experts especially discuss the suitability of process models for risk and compliance documentation as risks and compliance issues are easier to understand and to systematically identify in a process context (Becker et al. 2010a; Salmela 2008; Rikhardsson et al. 2006). In addition, many sectors are on very different stages – whereas in public administrations BPM has only started to be a major agenda topic in the last few years (Becker et al. 2006), large banks have been professionally engaging in BPM for more than two decades and looking forward to industrialize their service processes, while the automobile industry has been a highly process-optimized industry, focusing for almost a century on largely automated production flows for mass production. Therefore, the detached engagement in business process management in academias, without actually looking at the individual requirements of different business sectors may lead to insufficient knowledge on suitable domain-specific BPM skills due to the different BPM maturity levels of these sectors and also very different requirements towards BPM. Two further examples: automotive companies, representing the traditional industry sector, are interested in optimizing physical goods flows along their international supply chains using RFID technology (Becker et al. 2010d). In contrast, financial sector institutions, representing the service sector, are interested in industrializing their mostly administrative business processes, while adapting optimization concepts used in other industries like the automotive sector (Becker et al. 2009).

As a result of these findings, we developed a specialization module combined with a project seminar on the topic of business process management in the financial sector for the Bachelor program in Information Systems at the University of Muenster, Germany. In this article, we argue for its necessity, present the intention behind it and its justification, as well as draft the actual course procedure, while also illuminating the results of our first evaluation of the 1-year Bachelor specialization module. With this paper, we aim at providing other lecturers with reasonable insights and our experiences in setting up a business sector oriented BPM specialization module.

Background and General Design of Course

State of the Art of Education in Business Process Management for the Financial Sector

The German Information Systems (“Wirtschaftsinformatik”) education traditionally has a strong focus on business
A Multi-Perspective Approach to Business Process Management in the Financial Sector

Before aiming at developing a course on BPM with regard to the financial sector, we investigated the current state of the art at other universities and universities of applied sciences in Germany. This was actually due to understanding their curriculum and aim of teaching business sector oriented BPM. However, we were very surprised to learn that the majority of institutions only provide a generic introduction to BPM and not a specialization into any kind of business sector. From 42 universities and 63 universities of applied sciences, we were only able to identify courses on BPM that addressed issues from the financial sector at the Frankfurt School of Finance and Management (University of Frankfurt), the Technical University of Ilmenau, the University of Mannheim and to a smaller extent at the universities of Regensburg, Ulm, Augsburg and Esslingen, as well as at the universities of applied sciences of Brandenburg and Braunschweig. Most courses on BPM only offered generic insight into modeling languages, procedures for modeling and – to some extent – very small theoretical excursions with one or two case studies into different business sectors. With this rather surprising result, we started to develop a BPM course oriented towards banks within the generic Bachelor in Information Systems at the University of Muenster.

Bachelor Study IS Program at the University of Muenster

The Bachelor program in Information Systems at the University of Muenster is a six semester program comprising 180 ECTS that lead to a “Bachelor of Science” degree. It is a combination of classes in Information Systems, Informatics, Mathematics, Business Administration, Economics and IT Law. Each area has to be attended and offers different types of classes such as lectures, exercises, seminars or soft skill workshops.

In the fifth and sixth semester, students have to select two specialization modules that each have to arise from one of the areas. The specialized module consists of a lecture and a seminar. It usually focuses on a narrow topic (e.g. hybrid products in service sciences or legal informatics in the context of business process compliance) that may be of high current or future relevance to IS research or representing cutting edge research. This is due to the fact that the lecture part of the specialization module is intended to give a first introduction to the focused topical area of the specialization module, whereas the seminar part is intended to stimulate students to do their own research within this specific field of research, introduced during the lecture.

In addition, students have to select a project seminar, which is normally independent of the selected specialized module. Therein, they typically have to work on a larger project for one semester. This can either be a research project or a practical project together with an industry partner or a combination of both. The goal of the project seminar is to learn project management, develop soft skills and apply academic knowledge from the previous semester in a practical case setting. Within our proposed elective course combination offer, we combined both a specialized module, consisting of a lecture and a seminar in the 5th semester, and a project seminar in the 6th semester (cf. Figure 1), to consequently build up first industry competence and experience for Bachelor students within a traditionally more generalized study program.
### Theoretical Background and Aim behind the Course

The role of knowledge as a strategic resource is well understood in the business world. However, the question of how to teach and to make best use of it still remains insufficiently answered (Neumann, Tomé 2010). For universities, there is always a small degree between academic “truth” (in terms of general, but too broad domain knowledge or theories) and practical skills (that may be outdated in a few months already) (Winkelmann, Matzner 2009). Hence, our specialized module is based on the idea of giving Bachelor students theoretical knowledge about the cutting edge of BPM research and the financial sector on the one hand, but also enabling them to manage BPM projects on their own, after attending this elective course, on the other hand.

In general, people pass several competence stages when they acquire knowledge. For example, in the Dreyfus model of skill acquisition, five stages of knowledge acquisition from novice to expert are distinguished (Dreyfus, Dreyfus 1980). Researchers agree that reflective practice is necessary in order to go through different stages of learning. It involves considering own experiences in applying gained knowledge to practice while being coached by professional tutors (Schön 1983). According to the stages of maturity on the competence ladder (North, Hornung 2003), students have to go through different levels of competence acquisition in order to achieve sufficient knowledge and hence competency within their focused field of study. North and Hornung differ from learning about incoherent symbols and data without meaning to information that becomes knowledge in combination with certain
experiences and in a specific context. Furthermore, the actual application of knowledge to know how and its critical reflection, in terms of gaining competency, allows for the final goal of individually applying different methods, instruments and experiences in a unique and hence competitive way (cf. Figure 2). This goes well along with Kolb’s experiential learning theory model that outlines four approaches towards grasping experience, namely abstract conceptualization, reflective observation, active experimentation and concrete experience (Kolb 1984).

Hence, in order to allow for a broad education with regard to BPM in the financial sector, we decided on setting up a three step course module in the Bachelor program. It consisted of a lecture in the first half and a theoretical seminar in the second half of the fifth semester as mandatory parts of a specialization module. The lecture was accompanied by exercises, case studies, guest lectures from a bank and a consultancy and a one-day credit factory business simulation game on BPM in the financial sector. The seminar, in turn, was also done in conjunction with a bank and a consultancy and comprised a written seminar paper per student, a group work paper and the corresponding seminar paper and group work presentations. Optionally, we offered Bachelor students the participation in a practical project seminar, based on this knowledge in the sixth semester (cf. Figure 2), where they could apply their theoretical knowledge to an actual business case on BPM in a bank that was pioneering BPM in Germany.

The lecture (step 1) allowed for a first insight into the topic and a theoretical understanding of the implications of BPM in general and the needs of banks in specific. Based on this foundational knowledge, students were asked to apply the lecture material to theoretically motivated cases and situations within their seminar experience, as well as additional case studies and a business simulation game (step 2). A real-life BPM project at a bank allowed for actually transforming the knowledge into unique competencies (step 3). We will subsequently explain the different forms of teaching and their aims and outcomes in the next sections.

**Step 1: Lecture on Business Process Management in the Financial Sector (First half of Bachelor Semester 5)**

The aim of the lecture was to give students in-depth knowledge on BPM on the one side, basic background information on the financial sector on the other side, as well as some specific insights of how BPM in banks is specific and which current needs the banking sector has with regards to BPM. The only requirements for students to
be able to attend this specialization module were the previous courses from the first four semesters (esp. “Introduction to Information Systems,” “Foundations of Business Administration,” and “Operations Management”). Our specialization module (in total 5 ECTS) was designed for 10-20 students and we had eleven participants throughout the course.

<table>
<thead>
<tr>
<th>Lecture Topic</th>
<th>Type of Lecture</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 “Structure of the German Financial Sector”</td>
<td>a) Frontal Teaching</td>
<td>1.5 hours</td>
</tr>
<tr>
<td></td>
<td>b) Case Study “Process Organization of a Commercial Bank”</td>
<td></td>
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<tr>
<td></td>
<td>c) Exercise “Taxonomy and Characteristics of Bank Types”</td>
<td></td>
</tr>
<tr>
<td>2 “Objectives of Process-Oriented Modernization in Banks”</td>
<td>a) Frontal Teaching</td>
<td>0.5 hours</td>
</tr>
<tr>
<td>3 “Introduction to BPM Lifecycle in Banks”</td>
<td>a) Frontal Teaching (Guest Lecture by Consultancy)</td>
<td>2.5 hours</td>
</tr>
<tr>
<td>4 “Approaches to Business Process Modeling in Banks”</td>
<td>a) Frontal Teaching</td>
<td>1.5 hours</td>
</tr>
<tr>
<td>5 “Process Analysis and Process Costing in Banks”</td>
<td>a) Frontal Teaching</td>
<td>2.5 hours</td>
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<tr>
<td></td>
<td>b) Computer Exercise “Process Costing in a Regional Bank”</td>
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<tr>
<td></td>
<td>c) Group Exercise “Call Center Costing and Optimization in a Bank”</td>
<td></td>
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<tr>
<td>6 “Methods of Process Optimization in Banks”</td>
<td>a) Frontal Teaching</td>
<td>3.5 hours</td>
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<td></td>
<td>b) Laboratory Experiment “Process Analysis – Manually vs. Automatically Identifying Weaknesses in the Credit Application Business Process of a Bank”</td>
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<tr>
<td>7 “Six Sigma Business Simulation Game”</td>
<td>a) Frontal Teaching</td>
<td>8 hours</td>
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<td></td>
<td>b) Business Simulation Game with Group Competition</td>
<td></td>
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<tr>
<td>8 “Industrialization in Banks”</td>
<td>a) Frontal Teaching (Guest Lecture by Bank)</td>
<td>4.5 hours</td>
</tr>
<tr>
<td>9 “Value Chain Networks in the Financial Sector”</td>
<td>a) Frontal Teaching</td>
<td>1 hour</td>
</tr>
<tr>
<td></td>
<td>b) Case Study “Business Process Outsourcing and Shared Service Center in a Large Commercial Bank”</td>
<td></td>
</tr>
<tr>
<td>10 “Outlook onto Current and Future BPM Issues in Banks”</td>
<td>a) Frontal Teaching</td>
<td>0.5 hours</td>
</tr>
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</table>

The lecture was divided into an intensive one week course with 6 hours per day of lecturing. All in all we had ten different lecture units (cf. Table 1) including a guest lecture from the German TeamBank, which operates consumer credits as the only single-product bank on the market under its brand “easyCredit”, which is Germany’s best known credit brand. This guest lecture was on the topic of industrialization in banks, as the bank was currently striving for many BPM projects to increase its efficiency and already had first very successful BPM implementations. In addition, we included a guest lecture from Horváth & Partners – Management Consultants, Germany’s most highly reputed consultancy in the area of controlling and process management, which its largest consulting branch in the financial sector. Originally, this consultancy is most well-known for advancing the concepts of activity based costing to process costing in Germany and introducing the balanced scorecard as a management instrument on the
German market. Thus, the consultancy was asked to give an introduction to BPM for banks from the business consulting perspective. One of the consultants also gave a lecture on process costing along with a computer exercise using the consultancy’s own software solution for process costing. This software is leading in Germany’s market in the area of process controlling software suites and was introduced within a small case study on process costing regarding a call center in a bank. It resulted in a group work exercise and short group presentations regarding the different possible solutions to the case. This case was also a good preparation for those students that planned to go to consultancies later on, as it simulated a part of the typical teamwork required in assessment centers for new job applicants.

Furthermore, one complete day of the specialization module was devoted to a full-day business simulation game, which was also conducted by experienced consultants from Horváth & Partners. It was a six sigma credit factory simulation game that was originally developed by the ProcessLab at the Frankfurt School of Finance & Management. It introduced participants to the various concepts and methods of six sigma projects along the case of a credit factory, whose main credit process had to be optimized using six sigma methods. Thus, six of the ten lecture units remained to be conducted by lecturers, mostly PhD students and research associates from the University of Muenster (thus also fostering teaching experience, project management and presentation skills of these), which were experts in different topical areas related to BPM in banks. These lectures were extended by a small in-class case study on the process organization of the Center Invest Bank, a large commercial bank from Russia, and an in-class exercise on the taxonomy of different types of banks and their characteristics. Furthermore, we conducted a laboratory experiment concerning the manual and semi-automated identification of process weaknesses in the credit application process of a bank, using the EPC notation in comparison to the domain-specific SBPML for banks notation. We concluded with a case study regarding business process outsourcing and the creation of a shared service center at the Deutsche Postbank, which is currently among the five largest private banks in Germany and successfully operates the payment transactions of the largest share of all banks that outsourced their payments services in the German market.

The lecture, including all of these different forms of teaching by individual exercises, as well as teamwork exercises, case studies, and an interactive business simulation game, was finally completed by a 60-minute examination two months after the lecture block. This examination was based on a fictitious banking case, in which students covered topics from seven of ten lecture units. These topics included:

a) a first critical analysis of the situation, the bank was in, from a BPM perspective,
b) the comparison of two different BPM lifecycle approaches to be implemented in the bank and
c) comprehension questions on a selected business process modeling method and its suitability for the fictitious bank.

Furthermore, students needed to complete
d) a process costing calculation scheme, and
e) had to compare two process optimization methods (namely six sigma according to the business simulation game and Kaizen according to the lecture).

Subsequently, we asked
f) comprehension questions regarding the principles of industrialization, as they were introduced by the TeamBank, as well as
g) reflective questions on the taxonomy of basic actors in a value chain network and if, how and why these actor types corresponded to the fictitious bank in the exam.

Grading for the lecture was mainly done on the basis of the exam with the possibility of gaining further credits due to an active participation in the lecture, the exercises, the laboratory experiment and the participation in case studies (esp. the group case study similar to the assessment center).

Step 2: Deepening Seminar on Business Process Management in the Financial Sector (Second half of Bachelor Semester 5)

The goal of the seminar was to give students the chance to build upon the knowledge from the lecture, apply it to
two actual BPM case settings that our bank partner was currently confronted with, and gain scientific as well as soft skills. As the seminar part is based on the knowledge of the lecture, the lecture is also the prerequisite for the seminar part of the specialization module. Balanced with the lecture part the seminar part also totaled an additional 5 ECTS, so that the overall specialization module comprised 10 ECTS.

The seminar was divided into two case studies, which were introduced and supervised by the TeamBank, as well as Horváth & Partners, and several seminar groups and individual seminar papers. In the first case study the bank gave details on the execution flow of an as-is process at the bank and asked the students to identify optimization potential and propose an optimal to-be process. In the second case study the bank gave insight into the functional organization of the bank, which had previously been shaped through many mergers and acquisitions and again selling of different parts of the bank so that it was lacking an overall concept with a coherent structure. The task for the students was to propose a process-oriented setup of the organizational business units and departments that would clearly demark competencies on the one hand and also optimize process flows (with less organizational breaks) throughout the entire bank. For both of these seminar case studies the participants were divided into two competing groups, which had to present their competing solutions at the end of a 2 month period in front of the bank’s head of the BPM department, who then gave a detailed feedback on what the current status of these actual processes was in the bank and what was good about each team’s solution and which aspects needed further clarification from the view of the bank.

For the seminar group work three students were asked to develop a process-oriented configurable reference model for generic types of different typical banks. Another three students were asked to conduct research on the different departments a bank has and in what ways BPM and process models could be of use for these departments or are typically used in these departments. Finally, the third group, consisting of five students, was asked to identify as many different process modeling languages as possible (23 were identified by the students) and to develop a criteria catalogue for comparing these. The general idea behind the group work was to combine the results from all three group work papers and be able to evaluate the appropriateness of different process modeling languages for different purposes of different departments in banks, depending upon what generic type of bank was analyzed. With this insight it should have been possible to make suggestions as to which modeling languages should be used in which context for which purpose in a given banking scenario. From a pedagogical point of view the seminar setup also trained the students internal coordination abilities and social skills in the contest of coordinating 3 different groups with different task and bringing all of these together within one purposeful research artefact – a methodology for recommending business process modeling languages to be used in a given bank’s situational context. Since the outcome of this research also had to be presented, not only soft skills in general were trained, but also presentation and communication skills in particular were trained. Since the outcome also had to be documented in a scientific manner, the scientific abilities of reviewing literature, doing research and writing a scientific paper together with a group of investigators on the findings (with a maximum length of 40-60 pages) was also trained. In order to get a better insight into the individual performance of the seminar participants, a further individual seminar paper (with a maximum length of 15-20 pages) was required from each person. In conjunction with the group research project, each student was thus given the task to analyze one, two or three business process modeling languages, depending upon how closely related and comprehensive they were. These individual research findings in addition had to also be presented by each seminar participant at the end of the 2 month period of the seminar.

The final grade mark for each seminar participant was done on the basis of each group’s performance (evaluated by the presentation and the group work paper), regarding the proposed solutions to the two seminar case studies. In addition, we gave each group work a mark for the presentation and paper with slight changes in the individual person’s group mark according to the presentation style. Finally, to a large proportion, we also took into account each participant’s individual seminar paper and seminar paper presentation (maximum of 20 minutes). By having three supervisors, we were able to adjust the workload of reviewing the resulting group and individual papers on the one hand, whereas we all made a consent on each person’s presentation grade. Before giving the final marks for each person, we each summarized every participant’s seminar achievements and balanced it against the findings of the other supervisors, who had reviewed different papers, to make sure that no seminar participant had an advantage or disadvantage regarding grading due to a specific supervisor.
Step 3: Reflecting Project Seminar on Business Process Management in the Financial Sector (Bachelor Semester 6)

Building upon the profound education on BPM in banks with the help of the specialization module we offered a project seminar (15 ECTS) for Bachelor students close to the end of their final semester of their Bachelor studies. In contrast to the specialization module, which is an 80% theory and 20% practice approach, the project seminar is the exact opposite, with an 80% practice and 20% additional theory approach, since it builds upon the prior education of the students. It promotes a solution oriented perspective with a hands-on approach that applies academic knowledge to a demanding real-life case. The intention is to stimulate the students to use their existing knowledge and find ways in which they can transfer their knowledge to the given specific situation of a given project client and his or her problem to solve. Additional major goals of the project seminar are to procure project management, collaboration and communication skills, or soft / social skills during teamwork in general, as well as to foster technical and business administration skills (required by the information systems background of the project and Bachelor education) needed to solve a complex business problem. By having a real client a pressured environment similar to the business world, into which most students intend to go after their academic career, is built up on the one side, but, nevertheless, since it is a student project, a high value is also set onto providing a creative and experimental environment, which explicitly allows the students to take advantage of certain degrees of freedom regarding project management and alternative decisions for implementing solutions on the other side. As a consequence, in this learning environment mistakes and errors can also be made and are not explicitly discouraged since these also serve as a good source of learning and significantly help in avoiding the same or similar mistakes later on again, once the students exit into the business world and lead and are responsible for their own projects.

For the concept of the project seminar, we were able to cooperate with a second bank that was one of the pioneers of BPM in Germany with one of the lowest cost-income-ratios of its branch, due to its highly sophisticated and extensive BPM approach. The objective of the student project seminar from the bank’s perspective was to develop a BPM methodology for the bank that would enable the bank to design optimal processes with regards to costs, operational risks, customer satisfaction and overall process weaknesses (e.g. media breaks, organizational breaks etc.). For this purpose the project seminar cooperated with the business consultancy (Horváth & Partners) that had setup the BPM approach in the bank, as well as with the IT vendor of the bank’s BPM suite (iGrafx), which was used for modeling more than 1,200 business processes in the bank. The proposed outcomes of the project were several tools, which were drafted to be extensions of existing tools (e.g. via an iGrafx plugin) that enabled the bank to model and analyze operational risks, map process costs from a process costing software to the graphical business processes and finally a tool to automatically analyze static business process models for potential process weaknesses, including possible sources of customer dissatisfaction, due to the design of the business processes.

It turned out that this project ideally complemented our IS Bachelor program, since it incorporated five major fields of education within one project (cf. Figure 3). Business administration knowledge was necessary regarding the process costing approach; information systems knowledge was necessary regarding the whole BPM context and modeling methods; informatics knowledge was necessary to develop the software from the conceptualization until the final implementation, testing, documentation and handover; and mathematical knowledge was necessary to traverse through different paths in graphs (since business processes in the flow chart notation used by the bank are directed graphs) and find the optimal paths regarding different key ratios (e.g. costs, risks etc.). In addition, juridical knowledge was also applied to a certain extent since the students had to acquaint themselves with the knowledge on the Basel II approach to managing operational risks, as the goal of the project seminar was also to develop an approach, which would make it possible to identify, model and analyze these types of risks in business processes in a systematic way.

For supervision purposes we implemented weekly meetings with the student project seminar team and also defined several major intermediate presentations according to the project plan and predefined milestones of the project. In addition, Horváth & Partners offered the students coaching in the form of feedback regarding their presentation skills, project management skills as well as valuable advice concerning possible directions the project could take on the way to a successful implementation. From the University of Muenster three experienced research associates and PhD students were in charge of the supervision, which all had previous extensive supervision experience regarding the project seminar practice.
The project seminar finished with a final presentation in front of the top management including the chief executive officer of the back office of the bank and the final deliverable of the predefined work packages (e.g., tools and supporting documentations). The final grading was done through the various impressions the supervisors got by accompanying the students important meetings and workshops at the bank and through each individual’s presentations through the course of the project. In addition, the different tasks that each project seminar participant had performed throughout the project seminar were taken into account depending upon the difficulty and workload of the task.

As a result of the successful cooperation with the bank students were offered internships at the bank, as well as at the consultancy and students were also given the chance to deepen their practical knowledge in the context of a Bachelor thesis, which marks the end of each student’s Bachelor program.

**Course Evaluation**

**Students’ Perspective**

Since an evaluation of courses in general is of high importance for the improvement of teaching concepts (Seethamraju 2007), university wide standardized questionnaires were handed out to the students to evaluate the specialization module after participating both in the lecture (step 1) and the seminar (step 2). The questionnaires were filled out anonymously. It served to identify possible weaknesses and opportunities for improvements with respect to the course realization, its content, and tutor support from the university, as well as practical partners. Also, the positive aspects that should be repeated in the next course could be emphasized. The questionnaire consisted of various questions based on scale evaluations (grades 1-5), yes/no, and free text answers. Some of the evaluation results are shown in Figure 4. Additionally, feedback discussions were conducted to gather further suggestions from the students.

During the lecture (step 1), the students received various information through different channels such as frontal teaching (university lectures and guest lectures), as well as more open concepts such as case studies, group work exercises, computer exercises, a laboratory experiment and a business simulation game. The mixture between these different teaching methods allowed for setting up an interrelation between information on BPM in the financial sector and different contexts and situations in order to deepen the students’ understanding during knowledge
gathering (cf. Figure 2, step 1: Aim of Lecture). During the seminar (step 2), the students applied their newly gained knowledge turning it into applied know how in the context of two current real-life banking cases and also conducted their own research project (cf. Figure 2, step 2: Aim of the Seminar). During the project seminar (step 3), the students were faced with a challenging project, where they were now in the position to steer the project and make the right decisions as they were solely responsible for the overall project success or failure as well as all its single work packages. In addition, they competed against the internal departments of the bank, which had a similar process optimization project already running that was sponsored not by the BPM and the risk management department, but the specialist’s credit department themselves. They were able to gain similar results compared to the competing internal project and in several instances even better (e.g. automatic process model analysis) and more detailed results (through the integration of the costing IT system, the business process modeling suite as well as their self-developed analysis tool), thus complying with the underlying theoretical ladder for maturity stages as proposed by North and Hornung (2003).

In total, students seemed to be quite happy with the offered module content and their learning experience. They especially liked the interesting topics both from the banks and the consultancy’s perspective, as well as from the university perspective on the topic of BPM. In free text answer fields, students especially mentioned the learning effect they had due to the conducted business simulation game and the two seminar case studies offered by the bank in the subsequent practical work. Furthermore, many students mentioned that they enjoyed working together with a consulting company in a real-life banking case. For the project seminar a round table feedback discussion supplemented by individual feedback was done for an evaluation. This resulted in a high satisfaction of the overall real-life project experience despite the fact that the project was considered highly challenging and not feasible given the short time frame of only four months and various activities to be done as well as obstacles to be tackled. As such, the project consisted of four (sub)projects and comprised 12 students, 3 supervisors from the university, 1 from the consultancy and a core team of 6 key personnel at the bank and additional personnel, which all had to be coordinated. Furthermore, the students perceived the technical aspects of applying BPM knowledge very challenging, while at the same time doing research and enhancing BPM knowledge by developing extensions to a
given business process modeling language for the bank. Finally, coping with a new programming language, which only 3 of 12 students had been using before and not only using a new IT solution for modeling business processes but also getting engaged in a complex software development project with different requirements from two different departments (risk management and BPM) was perceived to be unfeasible at first. Nevertheless, the students managed to not only extend the BPM suite for the purpose of more extensive bank-specific business process modeling and even automatic process weakness analysis upon static business process models, but exceeded the bank’s expectations by far by suggesting and implementing additional advanced BPM features on their own. As a result of a very satisfied banking client the students not only managed to gain extensive experience in project management, software development, communication and presentation skills, but also felt themselves that through this project experience they had learned in many different aspects and felt ready for engaging in future BPM projects purely on their own. Another indicator that the students appreciated the overall specialization module and project seminar experience was that two students wanted to do a follow-up internship at the bank and one student was immediately offered an internship at the business consultancy, which he took up only shortly after finishing the whole course experience.

Lecturers’ Perspective

Setting up such a large module over the course of two semesters means a lot of effort for the lecturers. Before conducting the actual module we had an intense 3-month period of discussions and preparations, in order to set up a concept and an agenda for the whole module. In addition, getting industry partners to engage in a research project, and even a student driven practical project was a very demanding task. Looking back it was only possible due to a previous close and good collaboration with the consultancy in the context of a first industry-academic project seminar with the TeamBank a year beforehand, which also helped in convincing the second bank to join and to also engage with high personnel resources from the bank side in the project seminar, as well as convincing the head of the BPM department of the TeamBank to engage as a guest lecturer, case study and seminar supervisor in our specialization module. We believe that the overall combination of the specialization module with the lecture and the seminar and the project seminar was very successful and worth the efforts involved – especially also from a research perspective, as not only new case data could be gathered, but new research stimuli were received from the bank and the consultancy and it was possible to further develop previous BPM concepts, as well as even verify these at one of the BPM pioneers in the banking industry. Positive feedback of both students and practitioners encouraged us to repeat the specialization module. Not only were all existing project partners willing to repeat the experience, without any exception, but also new project partners (two more consultancies) were interested in engaging as guest lecturers in the next year. Furthermore, the results of the work of the project seminar students from a practical and an academic perspective were outstanding in terms of autonomy, work-load and quality of work.

Industry’s Perspective

The specialized module expands the teaching beyond actually teaching theoretical concepts by including both consultants as well as banking partners into the educational concept. By providing a three layer communication infrastructure, the support that was actually necessary from the banking partner was limited. In a first support step, the tutors were always there for the students (cf. evaluation of reach ability in Figure 4). Furthermore, external consultants were available during regular business hours in order to support the students especially during the project seminar part of the module. On a third level, the finance institute also provided support through its BPM employees. Therefore, the actual support effort on institute level was very low and filtered by tutors and consultants, which helped to keep up a good impression of the work of the project seminar team.

The consultancy was very satisfied with the way the lecture, the seminar and project seminar were taught and especially regarding the outcome of the project seminar, as they had given their trust upfront to the student team by introducing it to one of their banking clients. After the course the consultancy not only spontaneously offered internships but also the industry supervision of Bachelor thesis in the context of BPM in banks to all students of the specialization module and project seminar (e.g. one topic that was taken by a student was “six sigma approaches to optimizing processes in the context of workflow management data”). According to the bank’s BPM experts, the results of the student team highly exceeded the expectations of the bank, as the students were not only able to deliver a good solution in time, but also many additional features, suggested by the student team, which the bank could not have anticipated upfront of the project.
Looking from a market perspective the combination of cooperating with two banks, a top management consultancy as well as with an IT vendor for BPM suites offered all students the chance to dive into possible future career alternatives. In fact, we discovered that many students actually went into one of these three branches later on, but before this specialization module we had not sufficiently addressed these branches – especially not the financial sector branch, which is very attractive to IS students, as we found subsequently to the project seminar.

**Limitations and Conclusion**

In total, setting up a specialized module that consists of three different types of teaching (lecture, seminar, and project seminar) proved to be successful. First of all, it helped to intensify the students’ learning depth and experience with regard to the competence ladder. However, setting it up the way we have done also has some drawbacks. As we initiated such an elective module for the first time, our practical knowledge of the sector was limited in breadth (although very profound on specific topics). For this reason, we relied on some material from the consultancy and the banks and involved them into the module. On the one hand, this buy-in from industry partners helped to develop a comprehensive module with many practical insights. On the other hand, looking for industry participation may lead to a bias in teaching. As some students were offered an internship respectively a job at the consultancy and bank directly after the module end presentations, we assume this learning model to be very valuable for practice. Nevertheless, we tried to offer as many different unbiased perspectives on the topic as possible.

Due to the curriculum for IS students in Muenster, the specialization module is part of the Bachelor program. As we offered a three step module that started with the BPM basics first, no pre-knowledge was required. However, we believe the module to be more suitable in the Master studies, since we expect students to be more proficient in basic BPM languages and less help is necessary from knowledgeable tutors. Hence, more time can be spent on the actual teaching of BPM in the financial sector. Nevertheless, it turned out that students were capable of understanding and working with the topics on a very high level.

In a second teaching cycle, we will consider the student critics in order to improve the module. Again, we expect this way of teaching to be a valuable approach to gaining access to a methodical as well as business domain dependent knowledge. With the European discussion about Bologna and hence the Bachelor’s degree becoming the first graduate degree and hence an entry into practical work, the specialized module can help in identifying a suitable employer and develop an interest for a specific topic on an in-depth basis.

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