



Class Notes: BPM Research and Education

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How Was School Today?

Happy New Year! Last year I described several movements in BPM research, including efforts of boundary spanning [1], Green BPM [2] and x-aware BPM [3]. In my first Column in 2012, I want to turn to the educational side of “BPM Research and Education”.

Education in Business Process Management is meant to provide organizations with the knowledge and capabilities that they require for successful BPM initiatives. As we are seeing how organizations are becoming more process-oriented and more mature, we also see how they become more demanding of the initiatives and the outcomes BPM can provide. In turn, the need for BPM expertise is increasing. Process owners, process analysts, process architects, and managers of BPM centers of excellence are just some of the job descriptions for which deep and specialized as well as broad and generic BPM skills are required.

Another observation that can be made is that an increasing number of organizations are interested in adopting or expanding BPM initiatives and implementing BPM technologies without necessarily having sufficient internal competencies to undertake these initiatives. The essential decision is thus to “buy or build” – hiring BPM expertise from the outside through consultancies, or building BPM expertise within the organization. Of course, the latter option is more sustainable in the long run, as expertise is developed in-house. Still, roadblocks persist. We witness in particular:

- (1) a lack of consistent and comprehensive understanding of the notion of “process” in organizations and
- (2) a lack of capabilities and knowledge in BPM practices and technologies.

Several organizations turn therefore to universities to provide a response to the skill challenge. And indeed, BPM is making strides in academia [4]. Faculties in Information Systems, Computer Science, Operations Management, Business and other disciplines are leading the diffusion of BPM teaching in academia. Some departments are committing to teaching and developing new courses on BPM in order to increase the number of business majors; while in others, BPM is proposed as an answer to calls from employer representatives, professional associations, and the federal government to embed employability skills in university curricula.

Yet, the lack of a common vision and definition of BPM among academics or practitioners is hindering the development of a consistent BPM body of knowledge that can be used for education by both professional certification bodies and universities around the world.

Thus, what I want to do in this Column, is to paint a picture of the current BPM education portfolios that are offered globally by universities active in the BPM space.

To do so,, I will draw on work I was involved in that reviewed the BPM teaching capacities of five universities in the United States, Europe, Africa and Australia. My ambition is to complement the listings in the BPTrends Academic Program¹ with a more comprehensive and in-depth discussion of a selected set of universities. Let us explore how BPM capability development is implemented and offered in different universities around the globe.

The Global Landscape of BPM Education

I will explore the BPM education approaches at five universities around the world. They are as follows and are summarized in Table 1:

- Bentley University in the United States
- Georgia State University in the United States
- Queensland University of Technology in Australia
- University of Pretoria in South Africa and
- University of Vienna in Austria.

Table 1. BPM Education Examples from Five Universities Around the World [4]

University	School/ Faculty group	Department	Graduate Courses	Undergraduate Courses
Bentley University	Business	Information and Process Management (IPM)	Master of Business Administration (MBA) program (full-time and part-time, required)	Undergraduate minor in IPM (elective)
Georgia State University	Business	Computer Information Systems (CIS)	MBA (½ of required course) Master of CIS (required)	CIS Undergraduate BPM specialization
Queensland University of Technology	Science and Technology	Information Systems	Master of Business Process Management (full-time and part-time, required) Master of IT (full-time and part-time, elective)	Bachelor of IT (full-time and part-time, elective or required if a BPM minor or major is selected) Bachelor of Corporate Systems (full-time and part-time, required)
University of Pretoria	Engineering	Department of Industrial Engineering	N/A	Undergraduate courses covering BPM-related topics in Business Architecture, Business Engineering, and Optimization areas (required)
University of Vienna	Computer Science	Department of Knowledge and Business Engineering	Computer Science—Master of Business Informatics (required) and Economics—	BPM basics are part of more general introductory courses

¹ http://www.bptrends.com/resources_organizations.cfm?organizationTypeID=2F5802DD-3048-C0CF-057584B8675B9A1A.

Master of
Business
Administration
(elective)

At these venues, BPM educators are pulling together a constellation of related ideas, concepts, tools, methods, and technologies around the core concept of a business process--its definition, improvement, managed execution, oversight, and insight. Table 2 provides an overview of the teaching contents.

Table 2. BPM Education Curriculums from Five Universities Around the World [4]

Topics	Course Materials	Technology	Projects
<i>Bentley University</i>			
Business process definition, measurement, analysis, improvement, and control enterprise systems support for business processes, inter-organizational processes and systems	Reference book [5], book chapters [6], BPM-related articles (research papers and industry whitepapers), and internally-developed case studies, notes, and class exercises.	Process modeling (ProcessModel), live ERP platform (SAP).	Semester-long, separate, instructor-assigned team consulting project with major companies (day MBA), ¼ semester, student-proposed project in a real-world organization (evening MBA).
<i>Georgia State University</i>			
Process-as-a-service, process discovery, process and user metrics and KPI's, process modeling (rules, forms, events, and roles), process improvement and innovation, incremental change management, process implementation and use using a BPMS platform	BPMN modeling books [7-9], whitepapers (BP Trends, vendors, Gartner), articles and whitepapers on process improvement and innovation.	Process modeling (BizAgi Process Modeler), IBM's INNOV8 business process simulation/ game, BPMS platform (BizAgiXpress).	Student team identified and scoped real-world business process project (first course defines and creates as-is and to-be versions; second course implements).
<i>Queensland University of Technology</i>			
ERP, process management, process modeling, case studies, management issues, smart services	BPM articles (research papers, industry reports, internally-developed), industry guest speakers, BPM websites, and core texts used across the different units [10-20].	Process modelling tools (ARIS, YAWL and itp-Commerce); activity-based costing tools; simulation tools (ARIS); ERP platform (SAP); J2EE, .NET, Microsoft IIS, Sun Glassfish, Oracle BPEL, MySQL, Microsoft SQL.	Project proposals, recommendation reports (including consultation, process modeling and analysis reports), reflections, issue discussions, business case studies, tutorial participation, lab practices and demos, presentations, mid-semester and end of semester exams.

Topics	Course Materials	Technology	Projects
<i>University of Pretoria</i>			
Business architecture (systems engineering, information systems design), business engineering (operations), optimization (modeling and simulation, operations research)	Readings consist of published books, articles, and internally-developed materials. Topics range from professional ethics to business engineering. International popular readings are used for each subject area.	Microsoft Visio, KBSI's Enterprise Workbench, and ARIS, ADONIS, Bonitasoft, and Alfresco.	Most subjects include the use of exams, projects, tests, in-class exercises, and graded and ungraded homework. Community-based projects are also embedded.
<i>University of Vienna</i>			
BPM foundation, BPM life cycle (process strategy, design, reengineering and optimization, execution, controlling), BPM technology, BPM research and industry trends	BPM articles (research papers, industry reports, BP Trends articles) and internally-developed presentations and materials.	Process design, reengineering and optimization (ADONIS) and strategy (ADOscore) tools delivered under ADOuni cooperation program.	Instructor-directed team project for hypothetical university (in-class) and telecom, finance or healthcare virtual companies (at home).

What do we Learn?

How do we move the BPM field forward with respect to teaching essential concepts and techniques? In my view, we should take a look at where we are nowt, specifically, at how consistent the programs are across different venues and countries, and where gaps exist in our knowledge provision.. I think such a reflection would yield several conclusions.

One interesting aspect of the various approaches is that the BPM concepts are sometimes taught as part of other courses (either business fundamentals or specially-designed degree-specific courses), rather than as a unified course with a BPM-related title (except for QUT in Australia). On one hand, this certainly reflects the interdisciplinary nature of the BPM field, but at the same time it suggests that BPM is not a body of knowledge in its own right.

Another relevant observation is that a wide range of textbooks are in use at the different programs. A variety of such books are available, but we see from Table 2 that no two (let alone all!) can agree on one textbook as a foundation. My view is not that all should focus solely on one source of materials, but it would be helpful if at least a core of concepts and a common terminology could be found and agreed upon – after all, isn't that what we also preach in process modeling?

The point here is that we still lack a broad and deep set of pedagogical resources in terms of course materials, case studies, exercises - and qualified instructors. Most notably – where is the global BPM textbook? Mind you, several textbooks are available about various aspects of BPM – most notably in process modeling [7, 8] or process automation [21]; but where is the set of texts on other phases of the BPM lifecycle that is universally accepted?

A consequence is that most universities rely on internally-developed materials and a combination of books, book chapters, and various research and industry articles. To me, this sounds not only like a challenge but also like an opportunity. Imagine if we could pool these resources on one

platform, all these teaching cases, all these exercises. What a great base of knowledge and inspiration would it provide. BPTrends naturally comes to mind as such a platform, but other venues also exist. Think of the BPM Academic Initiative that is hosted predominantly in Europe (<http://www.signavio.com/en/academic.html>) or the Process Knowledge Initiative (<http://www.processknowledge.org/>).

A promising finding is that most universities recognize that having real world BPM input (through industry guest speakers) and experiences (through industry-based projects) is essential. That is a promising insight in my view, and should also excite all students and graduates to not only be able to learn theory but also apply concepts in practice during their education.

Furthermore, most BPM course offerings are based on a combination of managerial and technical topics, which usually require specific skills and more time to set up and teach than other existing courses. In most of the five BPM approaches presented here, the students are exposed, in one or two courses, to a variety of technologies for process modeling, simulation, optimization, and execution that would otherwise occupy one or several semester-long courses by themselves.

Finally, one of the items we can also notice is that career pathways and positions for students who enroll in BPM courses and programs are still somewhat unclear. In fact, what constitutes a BPM professional continues to depend on one's definition of the term. The positive view on this matter, however, stresses how BPM skills acquired in the education programs can lend their usefulness to a wide range of professional positions, and in turn to a multitude of career pathways.

Acknowledgments

In this Column I draw on discussions and background research that stems from a panel debate with fellow university colleagues that was held at the *European Conference of Information Systems 2009* in Verona, Italy. Representatives from the discussed universities were involved in this debate, and also in the analysis of the education offerings that followed from the debate. I would like to thank my colleagues and the other panel attendees for the input to the debate and also for their contributions to the analysis. As usual, the interpretation of their, as well as my own, work should be considered as my personal view.

As usual, please feel free to contact me with your suggestions, feedback and comments – or for a copy of articles related to the topics above.

About Me

Jan Recker is Associate Professor for Information Systems at Queensland University of Technology in Brisbane, Australia. Jan's research interests focus on the use of process design in organizational practice, the quality of process designs, and the development of innovative and sustainable process (re-) designs. He is globally recognized for his research on the industry adoption of the BPMN process design standard. Jan has authored and edited several books, including one on BPMN and one on Green BPM, co-authored over 100 academic papers in journals and conferences and presented his research all over the globe. He holds a PhD in Information Systems from Queensland University of Technology and a MS in Information Systems from the University of Muenster, Germany. His research and publications can be accessed at <http://www.janrecker.com/>. The best way to contact Jan is via email (j.recker@qut.edu.au). You can subscribe to his tweets at www.twitter.com/janrecker/.

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