

8-6-2011

# RELEVANCE OF BUSINESS PROCESS MANAGEMENT (BPM) COURSE IN BUSINESS SCHOOL CURRICULUM & COURSE OUTLINE

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## Recommended Citation

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## RELEVANCE OF BUSINESS PROCESS MANAGEMENT (BPM) COURSE IN BUSINESS SCHOOL CURRICULUM & COURSE OUTLINE

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### ABSTRACT

As increasing number of organizations are embracing Business Process Management (BPM), the need for including it in business school curriculum is ever-growing. In particular IS (Information Systems) programs face this challenge even more because of potential new skill sets that its graduates require to compete in the changing job market. While some of the programs in business schools have stood up to take the challenge, there are many who are yet to follow suit. In this respect, we discuss how different aspects of BPM are relevant to various organizational functions, and their subsequent impact on business school curriculum; especially IS programs. We provide a brief assessment of the relevance of BPM with different IS courses and present a proposed course content that can possibly be included in a graduate/undergraduate BPM course.

**Keywords:** Business process management, IS education, MBA course, Curriculum issues.

### INTRODUCTION

In recent years Business Process Management (BPM) has been getting significant attention from many organizations. Business leaders are focusing increasingly on cross-functional business processes rather than managing loosely connected functional silos. More and more process oriented organizations are evolving to take advantage of the new performance enhancement frontiers. As educators in business schools, we have the responsibility of assessing our curriculum with new waves of change in industry and modify and/or develop it further as necessary. Professional societies also have somewhat similar role in continuing education of its members. Thus, it is not surprising that a number of universities such as University of Iowa, Temple University, and UT Austin, and professional organizations like Association of Business Process Management Professionals (ABPMP) and BPM Institute are actively pursuing degree and training programs in BPM. The scope of our research is narrow but focused. We investigate if BPM concepts and practices have inherent connections with the existing curriculum and whether it makes sense to provide BPM course coverage by establishing its tie with existing courses. In particular, we pay special attention to undergraduate Information Systems (IS) and MBA curriculums.

First, we describe the role and scope of BPM as it relates to different business disciplines, and its relevance and importance in today's business world. Then, we focus on the connection of BPM with potential job functions of Bachelor of Business (BBA) degree seeking students majoring in IS and explain how understanding of BPM plays an important role. Subsequently, we describe the links of BPM with some of the undergraduate IS courses. We also briefly illustrate importance of BPM in MBA curriculum. Finally, we provide an outline of probable contents and supporting materials for a course on BPM and make suggestions for future work.

### BUSINESS PROCESS AND BPM: SCOPE & RELEVANCE

Many researchers / industry experts have defined business process with slightly different emphasis and focus. For example, Davenport (1993) defines business process as "a structured, measured set of activities designed to produce a specific output for a particular customer or market. It implies a strong emphasis on how work is done within an organization, in contrast to a product focus's emphasis on what." Ould (2005) mentions "a process is a coherent set of activities carried out by a collaborating group to achieve a goal". According to Laguna and Marklund (2005), business process "describes how something is done in an organization." The Business Process Management Common Body of Knowledge (2009) of the Association of Business Process Management Professionals (ABPMP) defines process as a "set of activities or behaviors performed by humans or machine to achieve one or more goal. Processes are triggered by specific events and have one or more outcome that may result in the termination of the

process or a handoff to another process. Processes are composed of a collection of interrelated tasks or activities which solve a particular issue. In the context of business process management, a business process is defined as end-to-end work which delivers value to customers. The notion of end-to-end work is critical as it involves all of the work, crossing any functional boundaries, necessary to completely deliver customer value.” While definition of business process by each expert or professional society varies slightly in the information content, inherently business process refers to an activity or a set of activities that transforms input(s) into output(s) that are valued by stakeholders.

Regardless of the definitions used it is important to note some of the important characteristics of a Business Process. First, a business process is outcome oriented. For example, the product development process results in a new product introduction while the order fulfillment process delivers a finished product or service to the customer. Second, each business process has internal and/or external stakeholders. Third, it is triggered by an event, which can be internal or external to the organization. For example, while an external customer placing an order via phone or internet may initiate an order fulfillment process, the process of procuring supplies may be triggered internally by the production department in a make-to-stock firm based on the forecast generated in the master plan. Finally, business process encompasses a set of interrelated activities. For example, an auction process involves posting an item, collection of bid instances over the auction duration, followed by identification of the winner at the end of the auction duration. Shipping the item to the winner and receipt of the payment completes the auction process. While only a few business processes may have scopes limited within the boundaries of a single functional unit, most of them span across multiple functional areas within or outside an organization. Smooth transition between the activities across multiple functional units or even organizations is one of the main thrusts in designing business processes.

BPM, on the other hand, is a generic term that encompasses structured methods, tools and techniques to streamline organizational processes, increase efficiency and add value. Considering the generic viewpoint, relatively minor process improvement, more significant process design or redesign, and technology driven process automation may also be included within the realm of BPM. Different perspectives of BPM originated from various organizational disciplines (such as Operations Management, Strategy, etc.) over time. In the following, we provide a brief overview of the major thematic areas that constitute the field of BPM.

From an organizational and strategic management perspective, an early emphasis on integrated comprehensive view on business process was provided by Michael Porter’s concept of value chain (Porter, 1985) which delineates the importance of streamlining operations across various functional units. Business Process Reengineering (BPR) was the next big wave in early 1990s that stressed on the holistic view of various organizational activities to be performed harmoniously to enhance efficiency and/or add value. Although BPR had enormous promise, its effectiveness was rather mixed. While some of the organizations could pull through successfully, many succumbed to difficulties involved in integrating disparate systems with the Information Technology (IT) available at that time and ill-designed implementation approaches. Balance Scorecard (BSC), originally developed by Kaplan and Norton (1992), is used now-a-days in many organizations to develop strategy, and also to define managerial responsibilities, and measure and evaluate performance. BSC needs various measurements including those of many business processes. Although there are few arguments on difficulties in successfully blending BSC framework with the BPM initiatives due to various organizational issues, BPM experts have proposed how high-level financial measures in BSC can be aligned with low-level measures mentioned in the SCOR framework developed by the Supply Chain Council (Harmon, 2007) and how organizational processes may be integrated with the business strategy defined by BSC (Smith, 2007).

A separate, but very important aspect of BPM originated from the field of quality assurance. The philosophy of the quality movement lies in the fact that quality should be built into the process of producing an output. As such, standardization (ISO certification), statistical process control (SPC), total quality management (TQM), etc. with a focus on quality; often are associated with improving business processes. The concept of Six Sigma, developed in 1980s, also covers process analysis and redesign. Although many of the early adopters of Six Sigma are in the manufacturing sector, many organizations in service sectors including banking, pharmaceutical, and healthcare industries have successfully implemented the methodologies. Similarly, lean or just-in-time (JIT) concepts pioneered by Toyota have been used by many organizations in diverse sectors as process improvement tools.

Finally, Information Technology (IT) also has largely influenced the initiatives on improving business processes. Many organizations used software systems, called workflow systems, to automate document and information processing. Enterprise systems like ERP (enterprise resource planning), SCM (supply chain management), CRM

(customer relationship management), and SRM (supplier relationship management) systems have challenged organizations to streamline their business processes to enhance ease of implementation and obtain rapid return on investment (ROI). Organizations like SAP and Oracle have pushed their clients to adopt best practices that often involved improvement and/or redesign of existing business processes. More recent development is Business Process Management Systems (BPMS), which advocates synthesis of process management practices with modern IT combining workflow systems, software application integration systems, and internet technologies (Smith and Fingar, 2003). The process centric integration focus of BPMS involving systems, data, and people/process owners is designed to monitor, control, and improve business processes in almost real time.

Although various waves of business processes improvement initiatives achieved their peaks at different points in time, the underlying theme of being efficient and value-driven remained sustaining through diverse manifestations. We present an all-inclusive view of BPM which has been driven by various concepts, frameworks, and systems developed in the areas of strategic management, operations and supply chain management, and information systems (see Figure 1). We call them core drivers. However, in order to reap the full benefits of BPM, it is crucial that the decisions made and/or jobs performed by other functional areas such as human resources management, marketing, accounting, and finance are needed to be integrated as well. We will call them support drivers. One may argue that functional boundaries may not exist in a process-oriented organization. While we agree with the argument, the fact remains that all organizations may not be able to transform or the transformation may not be a complete one. We think it is important to show the connection of BPM with various traditional organizational functions and emphasize the impact BPM can have on each of these functions. In recent years more and more organizations are getting interested in BPM and increasingly channelizing their resources toward BPM related initiatives (Wolf and Harmon, 2010). A recent Gartner report speaks highly of mature functionalities offered by BPMS software providers and their increasing market potential (Sinur and Hill, 2010). Truly, BPM shows strong indications of transforming the business world as we know today.

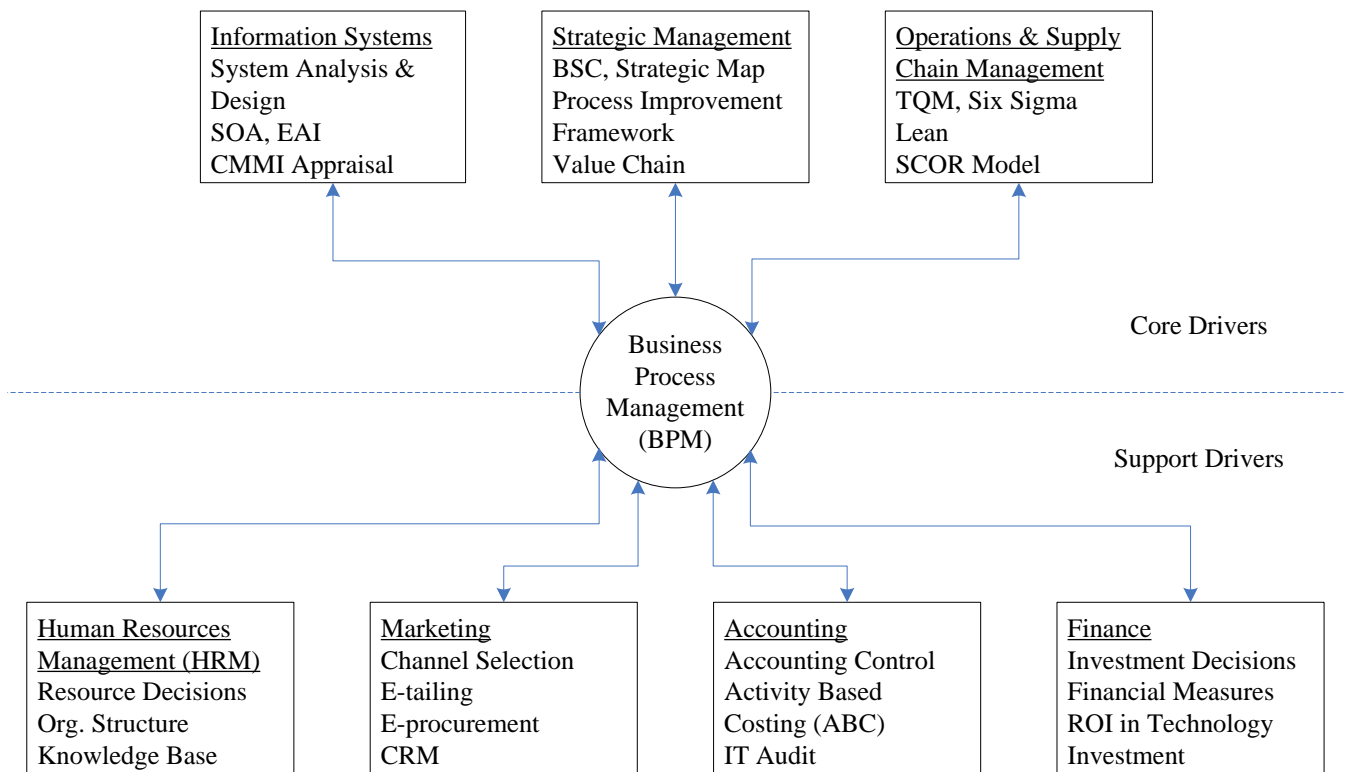


Figure 1. An inclusive view of BPM in the organization

**BPM & IS EDUCATION IN BUSINESS SCHOOLS**

Information Technology (IT) has been a significant enabler of various BPM initiatives. As increasing number of organizations are undertaking various forms of BPM initiatives and focusing on aligning business processes

accordingly, it is imperative that business school education reflects this reality of the modern era. We particularly focus on the IS discipline. First, we discuss how having basic knowledge of BPM is important in various job functions performed by professionals after completing Bachelor of Business Administration (BBA) with IS major. Subsequently, we discuss how some of the basic concepts of BPM may have inherent connection with many of the courses taken by students in IS major.

### Connections with Job Functions of BBA Degree Seeker Majoring in IS

After completion of BBA with IS major, professional employment may vary from highly technical to managerial roles. Typical job titles include business/system analyst, IT consultant, project manager, IT auditor, software engineer/architect, application/web developer, database administrator, network and system administrator, and computer security specialist. By no means, the list is comprehensive; but it covers the spectrum of potential employment to a good extent. If we explore the roles played by the professional holding these job titles, it appears basic understanding of business processes may be useful although the level of relevance may vary across job titles (see Table 1).

Job Title	Basic understanding of business processes may be		
	Not Important	Somewhat Important	Definitely Important
Business/System Analyst		X	X
IT Consultant		X	X
Project Manager			X
IT Auditor		X	X
Software Engineer / Architect		X	X
Application / Web Developer		X	
Database Administrator	X	X	
Network and System Administrator	X	X	
Computer Security Specialist		X	X

**Table 1. Relevance of basic understanding of business processes for various IT job titles**

Please note that the information in Table 1 is not set in stone, rather it is intended to provide a broad overview of linkage of business processes with roles and responsibilities in many common IT jobs.

It is also worthwhile to speak about the Capability Maturity Model (CMM), developed by the Software Engineering Institute (SEI) at Carnegie Mellon University in collaboration with the Department of Defense (DOD). It defines five stages that organizations go through in managing business processes in an increasingly competent manner. These five stages are initial, repeatable, defined, managed, and optimizing. Although the model was initially developed in the context of software development, the generalized nature of the framework allowed it to be used to aid organizational processes in many diverse areas such as IT services, system acquisition, software maintenance, and human capital management. Later Capability Maturity Model Integration (CMMI) approach replaced CMM to have better coordination among multiple projects. Currently, it addresses three areas: product and service development (CMMI-DEV), service establishment, management, and delivery (CMMI-SVC), and product and service acquisition (CMMI-ACQ). CMMI provides collection of best practices for improving processes. A project team or a division in an organization or the entire organization can have appraisal by comparing their practices with the ones in CMMI. As CMMI is being adopted widely, it is also logical to state that basic understanding of business processes should provide competitive edge to the IT professionals in the job market.

### Connections with the IS Curriculum

We looked at the undergraduate IS curriculum of few reputable programs in the US business schools. Since the core course requirements vary to some extent across schools we have tried to find a common ground in listing them. Also, we look at various elective courses offered in the IS major. Discussions of certain aspects of business process management may be relevant to many of those courses. Depending on the nature of the topics usually covered, we make an informal assessment of degree of relevance of business process centric discussions in those courses. Some

of the courses are listed under multiple categories since the emphasis may vary from instructor to instructor as well as because of diverse focus across programs. A summary is provided in Table 2.

	Business processes related discussions may be		
	Almost Not Relevant	Somewhat Relevant	Definitely Relevant
<i>Core Courses</i>			
Introduction to Information Systems / Information Systems in Organizations		X	
Introduction to Programming	X		
Database Management		X	X
Systems Analysis and Design			X
Data Communication and Networking	X		
Advanced Application Development		X	X
Information Systems Development and Implementation ( <i>Capstone Course</i> )		X	X
<i>Elective Courses</i>			
Computer Security Management		X	
Computer Forensics		X	X
Business Intelligence with Data Mining			X
IT Consulting		X	X
IT Project Management		X	
Strategic IT Management	X	X	
Service Oriented Architecture / Enterprise Application Integration			X

**Table 2. Relevance of business process related discussions in various IS courses**

It appears that a significant number of IS courses have scope to bring in business process considerations while covering the conventional topics. Also, there is opportunity to provide coverage of BPM as a stand-alone course. Although it is not prevalent, there are few business schools that are already offering core course (e.g. Fox School of Business at Temple University) or elective course (e.g. McCombs School of Business at University of Texas) on BPM in the IS major.

### **BPM IN MBA EDUCATION**

It is well established fact that organizations can utilize appropriately designed BPM initiatives to enhance efficiency in business operations and as competitive advantage to thrive further. As modern day executives are putting significant focus on cross-functional business processes rather than managing their organizations as independent functional silos, business processes are getting integrated with strategic and operational planning. A number of professional societies and other stakeholders have developed generic and domain specific process frameworks to facilitate process analysis. They are being used by a significant number of working professionals (ABPMP, 2009). Some of the well established frameworks are mentioned in Table 3. This also shows that fundamental understanding of business processes is getting increasingly important for all managers and industry leaders. As many of them pursue MBA level education for advancement in career path, it may be worthwhile to offer BPM course in the curriculum.

While a core or an elective course in BPM may be offered to all MBA degree seekers, some of the concentrations may have natural affinity to this course. In particular, professionals with concentrations in Strategic Management (SM), Operations and Supply Chain Management (OM & SCM), IT Management (ITM), and Healthcare Management may be interested in a BPM course because of the nature of roles played and/or to be assumed by

them. Also, professionals in Marketing concentration focusing on analytics type of jobs and those in Accounting pursuing career in IT audit may like to enroll in a BPM course. With respect to industry sectors, understanding business process may be particularly important in consumer discretionary, health care, financials, and information technology sectors (defined according to the Global Industry Classification Standard or GICS). Thus, considerable presence of potential employers in these sectors may also generate interest in BPM course. Programs may need to decide whether to offer BPM as a core course or elective course depending on its focus and student demographics.

Process Framework	Organization Developed	Main Focus
Supply Chain Operations Reference (SCOR)	Supply Chain Council (SCC)	Process reference model for improving and communicating supply chain management practices
Value Chain Operational Reference Model (VRM)	Value Chain Group	Model providing common terminology and standard process description integrating three domains of value chain: product, operations, and customer. Organizes processes in five levels according to various layers in the organization.
Enhanced Telecom Operations Map (eTOM)	TM (TeleManagement) Forum	Standards for business processes in the telecommunications industry
IT Enterprise Process Framework (IT-EPF)	IBM	Framework for organizing processes into five views to enhance visibility, reduce complexity, and enable synchronized enterprise level IT operations
Process Classification Framework (PCF)	American Productivity and Quality Council (APQC)	Taxonomy of business processes for monitoring and comparing performance for organizations in any industry
Business Activity Model (BAM)	MIT - Process Handbook	Business model providing process terminology that are fundamental and generic across almost all businesses

**Table 3. Some of the well established process frameworks**

### PROPOSED COURSE CONTENT

Based on review of books, articles, trade and other publications as well as our experience, we make suggestions on the contents of a BPM course that may be offered as an undergraduate IS course or MBA-level course. Several practitioner articles helped us come up with the topics described below. Most notable among them is the Association of Business Process Management Professionals (ABPMP) and their Common Body of knowledge that is used as a baseline for the certification of business process publications. Another prominent source is BPTrends ([www.bptrends.com](http://www.bptrends.com)), a portal for managers on the recent issues, tools, and solutions for business process management. Several topics, such as value of business processes, process mapping and modeling, process architecture, performance management, six-sigma are repeatedly mentioned as important issues in the ongoing conversations in these forums; and consequently built the basis for our following discussions.

Although there may be considerable overlap of contents between the courses in graduate and undergraduate levels if offered as a core course or elective course, we also point to some of the topics which may be more relevant for a particular combination. While we include some of the contents that are sold commercially by certain vendors, we are not endorsing them. Also, we are not claiming to provide best practices in developing the course. We are rather listing the topics that we consider relevant and mentioning some of the commercially sold products with which we and/or our colleagues had generally good experience.

In Table 4a we present the potential topics that may be covered in a BPM course. Under each topic we list some of the sample contents. The extent of coverage of these topics will vary depending on the course objectives and student needs. Even some of the topics mentioned in Table 4 may not be included and/or may receive cursory mention in a BPM course based on its stakeholders' focus. The breakdown of how each of these topics may relate to different undergraduate and graduate levels is provided in Table 4b. Finally, we also list few case studies that may be useful in a BPM course (see Table 5).

Topic	Sample Contents
Introductory Concepts of BPM	<ul style="list-style-type: none"> <li>What is business process</li> <li>Types of business processes</li> <li>Scope of BPM</li> <li>Brief history of business process change</li> <li>Strategy and Enterprise BPM</li> <li>BPM career path</li> </ul>
Process Modeling	<ul style="list-style-type: none"> <li>Process diagram basics and Notations (BPMN)</li> <li>As-is and To-be process diagrams &amp; Gap analysis</li> <li>Modeling conditions, triggers, and business rules</li> <li>Simulation modeling and analysis</li> <li>Activity based costing simulation</li> </ul>
Process Analysis	<ul style="list-style-type: none"> <li>Deciding what, when, and how much to measure <ul style="list-style-type: none"> <li>Performance metrics</li> <li>Continuous monitoring vs. Event-triggered analysis</li> <li>Measurement at enterprise level: Balanced Scorecard</li> <li>Measurement at operational level</li> </ul> </li> <li>Statistical analysis</li> <li>Process framework / Maturity model <ul style="list-style-type: none"> <li>VRM, BAM</li> <li>eTOM</li> <li>SCOR</li> <li>IT-EPF</li> <li>CMMI</li> </ul> </li> </ul>
Process Design and Improvement	<ul style="list-style-type: none"> <li>Process design roles: Participant/stakeholders</li> <li>Process design principles: Value added activities, Continuous flow, Reduction of handoffs, Proactive quality assurance, etc.</li> <li>Improvement methodologies <ul style="list-style-type: none"> <li>TQM</li> <li>Six Sigma</li> <li>Lean</li> <li>Activity based management (ABC in accounting)</li> <li>Rummler/Brache performance improvement model</li> </ul> </li> <li>Redesign / Reengineering</li> </ul>
Implementing Process Management	<ul style="list-style-type: none"> <li>Managing BPM projects <ul style="list-style-type: none"> <li>Gathering requirements and Defining scope</li> <li>Deployment of project team</li> <li>Development of rollout plan</li> <li>Process implementation</li> </ul> </li> <li>Organizational change management</li> </ul>
BPM Strategy	<ul style="list-style-type: none"> <li>Alignment on BPM with organizational strategy</li> <li>Design of incentives for stakeholders</li> <li>Development of process portfolio</li> <li>Performance assessment and review</li> <li>Strategies for sustaining effectiveness of BPM initiatives</li> </ul>
BPM Technology and Architecture	<ul style="list-style-type: none"> <li>Overview of BPM technologies, systems and tools</li> <li>Differentiation between business processes and business rules &amp; Selection of appropriate IS system</li> <li>Key capabilities of Business Process Management Systems (BPMS)</li> <li>Relationship of SOA and EAI with BPMS</li> <li>Different types of BPMS</li> </ul>
Advanced BPM Technology	<ul style="list-style-type: none"> <li>Configuration Management of BPMS</li> <li>Development of BPMS</li> <li>Overview of Extensible Process Definition Language (XPDL), Business Process Modeling Language (BPML), and Business Process Execution Language</li> </ul>
<i>Note: This topic is intended for technically savvy students. A</i>	



<i>standalone course may be offered.</i>	(BPEL) Workflow Technology Process Interaction Standards Development and maintenance of collaborative BPM system for productive business process execution
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**Table 4a. List of proposed topics in BPM course offering**

Topic	BBA IS Core	BBA IS Elective	MBA Core	MBA Elective ( <i>concentration</i> )
Introductory Concepts of BPM	Yes	Yes	Yes	Yes
Process Modeling	Yes	Yes	Yes	Yes
	Simulation Modeling and Analysis may be optional at the MBA level. Activity based costing for accounting concentration only			
Process Analysis	Yes	Yes	Yes	Yes
	The coverage of the different process frameworks and models may vary depending upon the particular concentration			
Process Design and Improvement	Yes	Yes	Yes	Yes
	TQM, Six-Sigma, and Process Redesign may be optional at the undergraduate level			
Implementing Process Management	No	May be	May be	May be
BPM Strategy	No	No	Yes	May be (Yes for <i>SM</i> )
BPM Technology and Architecture	Yes	Yes	May be	May be
	Advanced Topics are applicable for ITM only			
Advanced BPM Technology	May be	May be	No	May be for <i>ITM</i>

**Table 4b. Mapping of BPM course topics**

Case	Source	Coverage
Applegate, L., Vinze, A., Raghu, T. S., and Ipe, M., <i>Emergency Preparedness and Response at Arizona Department of Health Services: Implementing a Disease Surveillance</i>	Harvard Business School	The case provides students an opportunity to appreciate the challenges in effective process change. Students can perform stakeholder analysis, and identify how different stakeholders' conflict of interest as well as lack of coordination can impair a process.
McAfee, A., <i>Pharmacy Service Improvement at CVS (A) and (B)</i>	Harvard Business School	The case provides opportunities to solve a business process problem, and shows how process analysis and improvement may be effective in a real business situation. In addition, financial impact of business process improvement may be assessed using the data provided in the case. Note: This case is also used to teach IT capabilities at enterprise level.
Nambudiri, R. and	Ivey School of	This case involves mostly the issue of objective vs. subjective

Jayasimha, K. R., <i>Performance Management at the National Institute of Management (Central India Campus) (A) and (B)</i>	Business	performance and how to align employee incentives with organizational goals. Students get an opportunity to evaluate the strengths and weaknesses of the current performance measurement system, how the current measurement system falls short of meeting organizational objectives, and how incentives and performance measurement systems can be changed to align mutual interests.
Raghu, T. S., <i>Creating a Process-Oriented Enterprise at Pinnacle West</i>	Ivey School of Business	The case demonstrates how learning from individual process transformation may be used in an enterprise-wide implementation and showcases the challenges in the associated process-centric strategies. It also provides students with opportunities to analyze and model workflow processes.
Farhoomand, A. and Sethi, K., <i>Daksh and IBM: Business Process Transformation in India. Part 2 - The Post Buy-out Years</i>	University of Hong Kong	It gives opportunities to the students to get familiarized with global Business Process Outsourcing (BPO) and specifically to understand the pros and cons involved in off-shoring business processes. It also provides scope of focusing on various stakeholders in the merger and acquisition process and analyzing business development as a strategic process in a rapidly moving industry.

**Table 5. List of few relevant case studies for a BPM course**

BPM course instructors may also find the following online simulations useful in introducing some of the fundamental concepts in process analysis (see Table 6). Simulation software packages may also be used to develop exercises in a BPM course. As opposed to the fixed set of pre-defined exercises in the online simulations listed in Table 6, simulation software packages provide flexibility of developing custom-built assignments according to the instructor's preference. Some of these packages are mentioned in Table 7.

Plenty of articles on BPM related topics are available in Harvard Business Review and Sloan Management Review. Also, there are a number of professional organizations and forums dedicated to BPM including ABPMP (<http://www.abmp.org>), BPM Institute (<http://www.bpminstitute.org>), and Business Process Trends (<http://www.bptrends.com>). Many current topics in BPM are available at these websites. The instructors teaching a BPM course may consider assigning some of the articles available from these sources for reading and subsequent discussions in class.

Online Simulation	Source	Focus
Benihana Restaurant	Harvard Business School	Various elements of process analysis including throughput, cycle time, demand rate, and capacity in the context of a real life business organization Understanding of linkage between demand and process variability Development of operations strategy based on process analysis to improve profitability
Process Analytics	Harvard Business School	Fundamental concepts of process analysis including capacity, bottlenecks, throughput, cycle time, batch size, resource utilization (no real organization is mentioned)
Beer Game	MIT	Role of coordination in order fulfillment process in a hypothetical supply chain of beer making and distribution Propagation of demand variability across supply chain (bullwhip effect) – Need for information sharing

**Table 6. List of few online simulations for introducing fundamental concepts in process analysis**

Simulation Package	Provider	Comments
iGrafx Process	iGrafx ( <a href="http://www.igrafx.com/academic">http://www.igrafx.com/academic</a> )	User-friendly process analysis and simulation tool for various process diagrams, multiple scenario analysis, SOA modeling with visualization and reporting and graphing capabilities. Academic license is relatively cheap.
SIMPROCESS	CACI  ( <a href="http://simprocess.com">http://simprocess.com</a> )	Combines hierarchical process mapping, discrete-event simulation, and activity based costing in a user-friendly interface. It has capabilities of process animation, what-if scenario analysis, and MS-Access based report and graph generation. While university edition is cheaper than the professional edition, it has size restrictions and the license expires within 14 months of activation.
ProcessModel	ProcessModel, Inc. ( <a href="http://www.processmodel.com">http://www.processmodel.com</a> )	Powerful process analysis and improvement tool with full range simulation capabilities. The package includes data fitting software enabling extensive statistical analysis. It also allows animation of simulation and graphical reporting of outputs. Student package is relatively inexpensive but has model size limitations.

**Table 7. List of few simulation software packages for developing custom-built process modeling exercises**

## CONCLUSION

As increasing number of organizations are embracing BPM, the need for including it in business school curriculum is ever-growing. In particular IS programs face this challenge even more because of potential new skill sets that its graduates require to compete in the changing job market. While some of the programs in the US business schools have stood up to take the challenge, there are many who are yet to follow suit. We hope this manuscript will be able to offer them help in designing BPM courses.

It will be worthwhile to mention about some of the limitations in our approach. If a new BPM course is offered in the core curriculum other courses may need to be adjusted as total number of credit hours in core courses is not usually modified. We have not discussed this issue. Considering that few programs have already taken this step, we left it for the newly interested programs to figure out. However, this topic will be worth exploring in future. Also, in our appraisal of connection of BPM with job functions as well as IS courses and assessment of relevance of proposed topics with BPM courses offered in different programs and academic levels, we have used our and our colleagues' judgment and experience. In future, surveys may be conducted to gather more extensive opinions followed by consensus building. Nonetheless, the current paper provides preliminary guidelines in the pursuit of offering a BPM course in business schools.

## ACKNOWLEDGMENTS

We thank our colleagues for sharing their experience and taking time to make many valuable comments/suggestions.

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