THE REAL WORLD APPLICABILITY OF BUSINESS PROCESS MANAGEMENT PRACTICES IN IT ENABLED MANAGEMENT UNDERGRADUATE PEDAGOGY: A CASE STUDY FROM SRI LANKAN ACADEMIA

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ABSTRACT

The current state of business world is turbulent at its best and demands a constant urge to surpass the competition in the most strategic manner. In this agile environment, process optimization has been identified as the key area in enhancing the productivity to outperform competitors while maximizing the stakeholder wealth. Business Process Management is the scientific method of optimizing the business processes which can also be successfully adapted as a holistic management approach in any organization as it can be optimally included in streamlining the business processes with organizational strategies. Currently companies are in a constant quest for experts and professionals in this area for recruitment purposes due to the emerging attention towards the subject. As the global demand rapidly increases on BPM expertise, it is being found that there are certain gaps to be bridged when recruiting capable personnel for the industry requirements. As the foundation for this professionalism is laid during the undergraduate level of education, it is essential to develop a proper model in BPM education for the Sri Lankan academia: especially for education in management and IT context. The purpose of this study is to arrive at a conclusion on the industry requirement for BPM expertise, current BPM practices that have been adapted and to critically analyze the degree of alignment of these practices with the industry requirement. At the completion of this study, a BPM model for Sri Lankan academia will be suggested along with the corrective actions to be taken in order to implement a proper pedagogy curriculum for BPM in Sri Lankan Academia. Extending this model for Asian educational contexts will be a key consideration in the further proceedings section of this study.

Key Words: *Business Process Management, Curriculum Design, Education, Management and IT, Competency Gap, Best practices*

INTRODUCTION - BACKGROUND OF RESEARCH

A business process or business method is a set of interrelated, structured activities or tasks that produce a specific product or service for a particular customer segment; thus a methodical approach to achieve strategic business goals. Hence the proper management of business processes is considered the backbone of accomplishing organizational targets successfully.

In order to cater to this need, a set of structured methods and technologies for managing business processes has emerged as a powerful and competitive tool for today's organizations [Harmon and Wolf, 2010; Spanyi, 2008; Watson, 2008] which has been initially introduced using the term **"Business Process Management".** According to the web definition of BPM, it has been referred to as a holistic management approach to align an organization's business processes with the wants and needs of clients.

Industry surveys and case studies prove that BPM enables organizations to be more efficient and effective as it overrides the conventional hierarchical management approach with a more change adaptable and functionally focused systematic approach. The adaptation of BPM practices will continuously improve business effectiveness while striving for innovation, flexibility and integration with technology. Even though the real root of the term BPM is not precisely identified, it seems to have originated sometime back in the early 1980s. As of now, business processes are defined as key corporate assets that should be properly managed entailing its ownership, goal alignment, measurement and control, quality and improvement, further development and sustainability.

This more generic view of business processes and their management is an enhancement of the process movements of the 1980s and1990s that include business reengineering [Source: Hammer and Champy, 1993], business process innovation [Davenport, 1993], Six Sigma and Total Quality Management (TQM) [Laguna and Marklund, 2004], and workflow management approaches [van der Aalst and Hee, 2002]. BPM is not merely a management approach, but it is a discipline which is entangled with a substantial amount of technology, especially information systems. The technologies associated with BPM include enterprise resource planning (ERP) systems, process modeling and simulation applications, and business process management systems (BPMS). As organizations strive to be more process oriented and competitive, BPM tools and methods continue to evolve, and the need for BPM expertise is rapidly increasing. The area covered by the discipline of BPM is very dynamic and diversified; hence open for professionals from various backgrounds. Process owners, process analysts, process architects, and managers of BPM centers of excellence are just some of the job descriptions for which specialized BPM skills are required [Antonucci et al.,2009; Hill, 2006; Melenovsky and Hill, 2006; Olding and Rosser, 2007]. As the demand is on the rise, organizations around the world are seeking competent experts to undertake the initiative.

Irrespective of many successful implementations and studies done in the business world, some organizations are reluctant to adopt BPM due to lack of expertise available in the field. This is where the real research question pops out; whether the Sri Lankan academia is capable of serving this growing market demand successfully. If not, what are the corrective actions to be taken? According to the review of research that has been undertaken so far, the key reasons for this industry – academia conflict have been identified. That is, there is a general lack of (1) understanding of BPM principles in business organizations, (2) stakeholder commitments to implement and support BPM initiatives, and (3) managers' knowledge of BPM. This situation is exacerbated because BPM scholars, practitioners, and professional bodies lack a common definition of the scope and meaning of BPM to align with the industry need [Source: Bandara et al., 2007]. Hence it is essential to instigate a common vision and definition to overcome these hindrances and successfully embed BPM practices in the Sri Lankan academia in order to serve the growing emergence of need for capable personnel in this field.

Significance of the Study

Even though a considerable number of researches have been done in relation to BPM pedagogy in different academic scenarios in different countries, no such studies have been carried out for the Sri Lankan context: not even for South Asian context. When adapting the Western and European-developed practices to a Sri Lankan classroom without a careful

examination of the appropriateness within this socio-cultural vicinity, lots of difficulties and failures might occur. Hence the significance of the research has been identified along with the scope to ensure the success and applicability of these practices in Sri Lankan academia. Educators and practitioners of BPM discipline need to be assisted to bring out the change in their teaching practices in relation to the country's scenario. As the title suggests an empirical study should be designed for a chosen set of state universities where IT enabled Management degree programs are offered. Currently there are 15 state universities and 3 campuses coming directly under the authority of University Grants Commission of Sri Lanka. Only few state universities offer courses that can even be merely related to BPM, they do not include even one full module on Business Process Management. IT enabled Management pedagogy has been chosen since these sectors bridges both the information technology aspect and management science aspect providing a solid platform for the BPM discipline.

Another significant need for the study is identified as bridging the gap of what is being offered and what is required. Merely focusing on the theoretical aspect will not be enough for undergraduates as industries seek more practically competent professionals to recruit. The beauty of the BPM discipline also extends with its vast applicability in various fields, not just theoretically and practically, but also as a source of grooming students as more competent professionals enriched with knowledge, skills and attitudes to fit in the corporate environments. This has been identified as a key component in the significance of this study as no such studies have yet been carried out for the Sri Lankan academia.

Research Questions

Q1: What is the ideal combination of Knowledge, Skills, Attributes and Experience matrix for a graduate hailing from the IT enabled Management pedagogy?

Q2: Can BPM be introduced as a model to serve the process oriented job requirements of the industries?

   If so what are the best current practices for the chosen set of industries?

   To what extent should the graduates be knowledgeable about these practices?

Q3: How can the gap of industry and academia perspectives be addressed using the BPM practices?

Q4: What best teaching, learning and evaluation practices should be incorporated by curricula developers in order to transfer the required competency set at the undergraduate level, especially for IT & Mgt graduates?

Objectives of the Research

This paper is a critical review of literature related to BPM in order to identify the current state of BPM education in Sri Lankan context linked with the industry need for professionals.

Hence the paper will be useful as a reference material and a support source for all the BPM researchers around the country who are willing to conduct BPM related researches for the Sri Lankan scenario. This paper provides a set of guidelines for BPM educators and domain enthusiasts around the country to follow, in embedding a proper BPM pedagogical system for Sri Lankan academia. The ultimate objective of the authors is to provide a BPM framework that can be easily adapted by state university degree programs to meet the real world industrial requirement while providing the competitive edge for the undergraduates hailing from the same discipline. This study, once completed, will provide a comparative analysis of various practices adapted by state universities in BPM pedagogy and recommendations and corrective actions will be provided in enhancing the quality of each program. The purpose also substantially deviated towards ensuring the importance of BPM in the agile business environment in the light of marketplace demands for BPM expertise.

Apart from the prime objective, the following sub objectives would be addressed at the successful completion of the study.

- To address the issues faced by the practitioners of BPM discipline and stakeholders (faculty, chairs and deans, students, industry, government and professional entities) with respect to future visions for enhancing undergraduate education appropriate to the full spectrum of:
  - Challenges and opportunities faced by practicing the discipline in a variety of operational contexts
  - Emerging and established knowledge of how students learn and engage in discipline-based pedagogy
- The availability of study material and BPM expertise and the level of obtaining such resources
- To identify and flesh out possible collaborative (between academia, industry, and third party stakeholders) implementation models that address the prioritized KSAEs
- To critically evaluate the desired outcomes and the metrics by which progress toward the outcomes may be measured; carrying out an empirical study

Expected Deliverables

The key outcome of the study is to build a portfolio of BPM practices according to the priority levels assigned by the Quality Function Deployment (which is developed at the end of the study to identify the real gap between two perspectives of BPM: The industry perspective and the academia perspective). Graduate profile which is named as a "Competency Cloverleaf" is the author's adaptation of Bloom's Taxonomy with the enhancement of adding a new dimension: Experience.

BPM Roadmap is one of the key deliverables at the end of this study. Road mapping is applicable for many situations from setting scientific research agendas to industry direction to product and technology plans, especially in technology road mapping. The justification of calling the end outcome a BPM Roadmap is, this being a framework consisting of a set of guidelines in helping curricula/guide developers and BPM practitioners to decide on the ideal content of BPM for the Sri Lankan scenario. It also provides a foundation to educators (both

at tertiary-institutional and professional levels) who are interested in integrating BPM education into their education/ training offerings. Hence the study presents a systematic way of how 'teachable' and relevant content has to be identified in a rapidly emerging field of IT enabled Management undergraduates, where few or merely no offerings are existed particularly within the Sri Lankan or even Asian context. This framework also guides the construction of curricula, making sure that it sets a clear future objective and answers the critical "why-what-how-when" questions that define and explain a clear action plan for reaching the BPM objective in future.

Quality function deployment (QFD) is a "method to transform qualitative user demands into quantitative parameters, to deploy the functions forming quality, and to deploy methods for achieving the design quality into subsystems and component parts, and ultimately to specific elements of the manufacturing process.", as described by Dr. YojiAkao [Wikipedia] . So the author focuses on developing a QFD which includes KSAs [Knowledge. Skills and Attitudes] of undergraduates expected by potential employers in the term of "Whats" and How the BPM skill set can address the gap in the term of "Hows" related to the study.

LITERATURE REVIEW

An in-depth review of literature was conducted to discover related previous researches conducted in the area and to explore opportunities for further research. This section provides the detailed review of literature on Business Process Management in two perspectives; pedagogy models that can be adapted in IT enabled Management education and performance measures/BPM toolkit.

Business Process Management – State-of-Art in education

The integration of Business Process Management practices in higher education is an area which received much attention from academia around the globe in past decade. The reason for this trend can be identified as a response to the requirement from the industry for BPM specialists.

Related work on BPM education and teaching can already be found in research literature from the beginning of the year 2000 following the emergence of the topic in research and practice. [Stewart and Rosemann, 2001] ; Stewart and Rosemann, (2001), for instance, describe the use of process modeling as a teaching case integrated in an ERP-oriented curriculum. A similar study has been conducted in order to implement a proper BPM framework in Australian academia under the topic "Current state of BPM education in Australia: Teaching and research challenges" [Marjanovic, and Bandara. 2010].This study extensively investigated the current status of Business Process Management (BPM) education offered at Australian universities. Analysis has been informed by two different sources of data; i) Content analysis of BPM offerings found from aweb search, and ii) interviews conducted with BPM educators delivering these offerings. The authors suggest that even though this study reports on an Australian context, this can beextended later to a larger geographical coverage or to an entirely different geographical area. Hence this study exploits the opportunity of expanding the research into the Asian context. Apart from offering a practical guidance to the current and future BPM educators, their students and the employers

of their students, this research also discovers and analyzes the current BPM-related challenges.

Moormann and Bandara, (2012) in their paper "Learning, teaching and disseminating knowledge in business process management", emphasize that the field of educating in Business Process Management is still in its early phases of maturity, with many open issues still unaddressed, hence suggesting that these should be addressed by the BPM practitioners all around the globe. The paper also declares that BPM education is crucial, since employees and managers have to conduct the mind shift towards a process-oriented organization. And today´s students and trainees are those who will introduce and implement BPM initiatives in the near future. The papers collected for this special issue provide an insight for academics and practitioners on recent research on learning, teaching and disseminating knowledge in BPM. Since education in BPM is a valuable and requisite investment for the success of BPM in organizations, authors anticipate that this special issue will foster further interest in what they believe is decisive for the sustainability and success not only for BPM initiatives but for the BPM discipline in general. Ten principles of good Business Process Management practices have been introduced by Jam Vom Brocke and Theresa Schmiediel to foster a common understanding of BPM as a research domain and guide the practitioners which is a good source material for the study.

Since the study is based on pedagogical aspect of the BPM education, a literature review on teaching methods has been carried out. Educating students in business process management with simulation games is an area researched few years earlier by Vuksic et al, (2014), which aims on presenting a framework for empirical investigation of the effectiveness of simulation games for student learning of BPM concept. This paper clearly concludes that the business simulation games provide students with opportunities to develop skills and knowledge in a controlled environment without risk of harm and with relatively low costs. Also the importance of experimentation, knowledge discovery, "hands-on" and "role-play" experience, teamwork and collaboration are highlighted as good teaching practices in BPM as those are very important aspects of BPM simulation games which can help students to develop business and managerial skills.

A keen analysis of literature was done to identify the gaps and limitations in the offered BPM knowledge and industry requirements. In the paper BPM: A missing link in business education [Seethamraju R, 2012] an extensive analysis on the inadequacies of current business education in the context of "process" is presented with the conclusion that business schools teaching primarily function specific and narrow while IT schools focused on technical skills the holistic view of process management is not captured. Recent studies are built on these results and provide more detailed content from the teaching practice. Paik, Rabhi, Benatallah and Davis, (2010) present a community of SOA/BPM education as a foundation for a collaborative learning and teaching environment as well as the accordant curriculum. Recker and Rosemann,(2009) present a setup, structure, teaching techniques and experience of a course in business process modeling at Queensland University of Technology in Australia. The authors focused on process modeling; the topic and implication of BPM are only briefly discussed. Ravesteyn and Versendaal, (2010) suggest a curriculum for a BPM course for both bachelor(of computer science) and Master's students (of business informatics) students at the HU University of Applied Sciences and Utrecht University. Neubauer,(2012)

provides an e-learning approach towards education of process modeling illustrating the usage of the approach with indifferent scenarios.

Levina, (2013) in Teaching Business Process Management for Heterogeneous Audience, addresses the topics of BPM competencies in university education in an interdisciplinary context and provides an example on how to set up a process-oriented curriculum for graduate students. Description of the curricula is extended by the description of used teaching methods as well as course evaluation techniques and results for a heterogeneous audience. A resulting suggestion of the study is to create an accessible body of knowledge on BPM using the possibilities of e-learning, i.e. creating and maintaining an online- platform where BPM lecturers can store, discuss and exchange their teaching material, publications as well as exams and share insights from the current or older courses. Author suggests that this platform would reduce the workload related to material search for new but also for experienced lecturers, introduce new points of view depending on the exact focus the course is taught from, present knowledge requirements for BPM specialists from different countries and cultures as well as provide a common international basic knowledge on the topic of BPM as required and strongly suggested by Bandara et al., (2010).

According to the study "Professionalizing Business Process Management (BPM) towards a Body of Knowledge [BoK]" [Bandara, and Harmon., 2009], there are a number of efforts underway to formalize the various aspects of BPM practice; creating a formal Body of Knowledge (BoK)is one such effort. Bodies of knowledge are artifacts that have a proven track record for accelerating the professionalization of various disciplines.

McHardy and Allan provides an in depth analysis on closing the gap between what industry needs and what higher education offers, which can be used as a good guideline paper. It also summarizes that a substantial preparation by facilitators is required beyond that of lecture agendas. Holistic learning is dynamic and sometimes traumatic for some individuals, particularly in negotiating situations. There are moral pressures on educators, as well as practical problems, such as time restrictions and finding venues with flexible seating. Good outcomes can be generated by finding solutions for such limitations, as the paper suggests.

"Bridging the gap between university and industry: experiences with a senior level undergraduate supply chain course" by Steenhu is, (2005), describes a "new" approach to a senior undergraduate level OPSM class which can be used as a guideline in conduction of data collection phase and data analyzing as even though the course modules are different the approaches could be adapted for BPM. In this approach, a heavy emphasis is placed on bridging the gap between university and industry by visiting local companies to learn about how they handle their supply chain and by performing small, mostly quantitatively oriented, projects for local companies.

Higher education is a form of communication between society and the individual, where the standards and accumulated knowledge of society is communicated to newer generations (Hills, 1979). Higher education is also a service organization composed of a set of interrelated processes from which society is demanding better results. The paper "Adapting Business Process Redesign concepts to learning processes" [Mandviwalla, 1998] integrates the "communication centric" vision of learning with the process improvement orientation of

business process redesign (BPR) (Davenport and Short, 1990). Research on education and technology tends to focus on improving the quality of the content or content providers. A review of the educational and information technology (IT) literature suggests that there is no one unified theory that can be used to guide the research. There is a large body of relevant research in the education literature, in "computer mediated education" (CME), and applications of CME to education. In this study, it has been shown how BPR can integrate technology issues and the findings of education and CME research into learning process redesign.

Published work on education falls into two categories. The first and largest category consists of guidelines and methodologies for improving education. This work is useful but difficult to apply because it usually does not address differences in teaching style, type of student, and so on. Such guidelines also do not take into account the potential of IT. Another type of research seeks to understand and model the actual process of teaching and learning. One subset of this research models the cognitive process of learning. Another subset, which is the focus of the above mentioned paper, models the flow of information among the people involved in education.

To bridge the current gaps which exist, BPM tool kit can be developed. The most widely used model to reflect the holistic nature of the BPM discipline, and interconnectedness of different aspects of this field, one of the most prominent holistic BPM tools was proposed by Harmon (2007). This model reflects the current developments in the BPM field that extend well beyond technology and even process redesign and implementation projects. Most importantly, this model emphasizes the importance of the link that is often missing between organizational strategy, business processes and technology.

This link between strategy and IT, enabled by the business processes, is important not only for organizations aiming to bridge the gap between business and IT, but to also justify the business value of their BPM initiatives. Without any doubt, this is equally important for students both in IT and Management, who may be in charge of BPM initiatives but also be on their receiving end. Not having a holistic view of BPM blocks the ability to link these core elements together, this is a critical issue for the progression of BPM as the study suggests, especially in terms of value-creation.

The BPM Roadmap presented at the completion of this study will take this related work and results of the empirical studies on BPM knowledge requirements into account as well as integrates the body of knowledge created in the BPM teaching area in the last decade. The content as well as teaching goals of the course will be based on the skills for BPM specialists as identified by Bandara et al., (2007).

METHODOLOGY

Research Approach

The research will be carried out as a case study of Sri Lankan academia including 3 of the renowned state universities of the country. The data portfolio consists of a combination of qualitative and quantitative data supporting the interpretive nature of the study. Qualitative data is gathered through literature reviews, interviews with stakeholders, questionnaires and

focus group discussions. Quantitative data is gathered through secondary data, interviews and questionnaires.

The purpose of the research falls under the descriptive category hence research design is descriptive. The method of reasoning is inductive since it shifts from specific observations to broader generalizations and theories of a generally adaptable BPM framework following a bottom up approach. The initial data collection is preceded by an extensive literature survey that has been carried out to find out the approaches, gaps and applicability of existing available literature and related work from the past. The research questions are formulated based upon the observations backed by the survey.

The research is conducted as a case based study of Sri Lankan universities with the support of existing literature available for Australia, Asia, Europe and United States.

Research Design

The literature above provides proof that BPM and Process Modeling are emerging areas within the IT enabled Management discipline and that courses addressing these topic areas will be useful to produce graduates who can fill the knowledge gap that the industry has been facing for years. However according to the similar studies that have been carried out around the globe, it has been proven that researchers may face several challenging situations when it comes to the initial establishment of course content related to an emerging discipline.

Given the broad capacity of the area, deciding on what topics/themes to include in the course and how to integrate these themes with the real world scenarios, lack of available teaching resources, and no prior teaching expertise in the discipline are some critical challenges to overcome when attempting to implement courses in new areas [Ball, 2000]. Other than that, a huge amount of data from various sources is needed to decide on the task of gap analysis when determining what practices would serve the industry needs ideally. Hence the research follows a systematic approach that was designed and applied to address these key questions. This part of the research presents how these questions have been addressed using the design of a new course to introduce process management related content in leading IT enabled Management pedagogies in state universities.
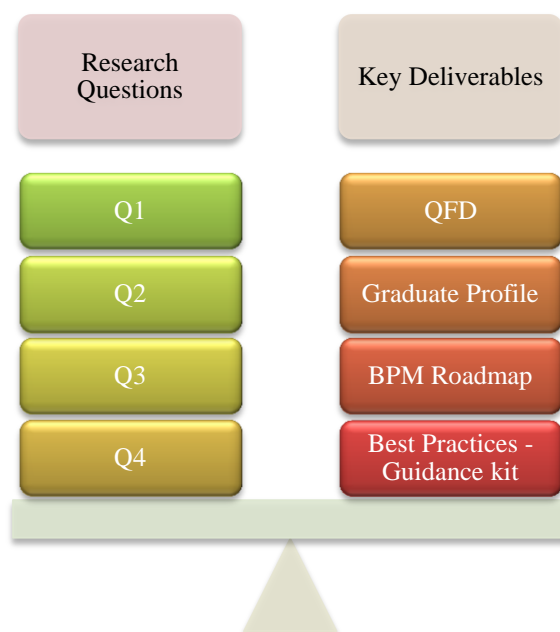
Figure 1 Questions and deliverables

Q1: What is the ideal combination of Knowledge, Skills, Attributes and Experience matrix for a graduate hailing from the IT enabled Management pedagogy?

Q2: Can BPM be introduced as a model to serve the process oriented job requirements of the industries?

If so, what are the best current practices for the chosen set of industries?

To what extent should the graduates be knowledgeable about these practices?

Q3: How can the gap of industry and academia perspectives be addressed using the BPM practices?

Q4: What best teaching, learning and evaluation practices should be incorporated by curricula developers in order to transfer the required competency set at the undergraduate level, especially for IT & Management graduates?

A qualitative multi-method approach will be incorporated using data from various sources: content analysis of online data (on recent BPM related jobs), individual interviews with BPM educators in the country, questionnaire circulation among industry experts in BPM [Potential employers for IT & M graduates] are applied in the attempt to identify the required topics.

This multi method approach will encompass the requirement of information from different perspectives. For example, the researcher intends to analyze process related job vacancies in chosen sectors for 4 countries, Sri Lanka, Australia, India, and UK to ensure that both local and global requirements sought by BPM recruiters are well captured. By that, the model will become even more flexible as there is a high tendency for competent graduates to

seek for opportunities overseas. Interview based data collection approach for Sri Lankan BPM educators will ensure the quality of the final outcome, as experience and expertise in BPM forte is very much required when adapting an emerging discipline in HE pedagogies. The questionnaires and focus group discussions with local BPM practitioners in the industry will enable a synopsis of what the local industries mainly seek in there applicants.

Experimental design

Population

- State universities which offer degrees in IT enabled Management discipline
- Potential future employers of graduates from IT enabled Management discipline and BPM practitioners across the country

Sample frame

- Academia perspective
  - University of Kelaniya - MIT
  - University of Moratuwa - ITM
  - University of Wayamba - IM
- Industry perspective
  - IT/BPM Industry
  - Consumer goods
  - Services sector
  - Financial institutions
  - Conglomerates

Sampling Units

- BPM educators from the 3 respective universities
- BPM recruiters from the identified different industries
- Undergraduates in IT enabled Management

The methodology of the research depends on the descriptive nature of the study and its experimental approach. An empirical study would be carried out covering both the industry and university contexts. The research is preceded by with a broad literature survey that will be conducted to discover the studies in relation to similar areas. Then the research questions will be formulated and hypotheses will be developed.

Step 01: Developing a BPM skill set and other related information that can be used as a framework in further research work

Business Process Management (BPM) consists of a plethora of methods, techniques, and tools to support the design, enactment, management, and analysis of operational business processes. The initial step of research methodology aims to build a BPM skill set where each of these theoretical aspects fit according to the requirement of the research, hence results in

providing an overview of the state-of-the-art in BPM. Since all these theoretical aspects cannot be adapted, it is important to extract the most essential set of practices in carrying out the research work. Apart from the skill set, information on IT enabled management degree programs offered by the state universities has to be identified in order to define the scope of the research.

Step 02: Identifying the industry need for the BPM skill set

The author intends to carry out the research work from two perspectives when defining the application of BPM in the real-world context, one is to improve undergraduate education, based on the experience of academic experts in BPM forte along with student feedback, and the other is to focus on and update the core concepts based on the industry needs. The author presumes that IT enabled management education is a pedagogy where BPM should be taught in the context of current practices and application. The framework should be entirely based on providing the fresh graduate with a competitive edge in the job market where these practices can be adapted for career growth. Hence, a survey on industry expectations of an entry-level employee for BPM related job roles will be designed and implemented. The employers' survey includes an assessment of the current relevance of business process management in enhancing the productivity of operations. The results and findings of this survey will provide guidelines on which topical areas and topics within the framework should be strengthened and prioritized through lectures, discussions, and industry related activities.

Step 03: Industry Survey

A survey research will be carried out to understand the importance of the BPM topics covered in the different course modules with regard to the industry and also to obtain feedback from potential employers. A formal industry survey will be designed to assess the level of importance of the topics covered in the BPM skill set to the industry when hiring an entry-level applicant. The respondents should provide their responses in terms of a given scale according to the importance of the topic for their organization when they are considering a potential employee especially from the IT enabled management background, for an entry-level position that requires BPM skills and knowledge.

Step 04: Feedback from academics and undergraduates in the IT enabled Management pedagogy

The next step of the methodology is to translate the previously captured industry needs into curricula and teaching styles, as it is very important to understand the priorities assigned by the industry to the different practices given in the survey skills set. Knowing these would be the key to implement the most appropriate framework in bridging the gap between industrial needs and what is being taught. In addition, it is essential to maintain a distinction between the skill set required by industry and the practices adapted in state universities and clarify how this gap can be addressed by implementing a refined BPM framework. It would be worthwhile to identify different practices adapted across disciplines and different institutions so that a comparison can be made. This step would be entirely based on collecting primary data from the academics and students through surveys and direct

interviews. It would be ideal to carry out pre and post empirical studies to serve the purpose in a more effective manner within a chosen time frame.

Step 05: Integration of different perspectives

The final and the most critical phase of the methodology is to integrate the two aspects of BPM in order to bridge the identified gap. Data collected from the reconfigured groups of industry representatives and academics are meticulously analyzed when developing the Quality Function Deployment [QFD]. The result is going to be a matrix consisting of "What," showing most desired practices; "Who," referring to those responsible for fulfillment; and "How" it could be carried out. For example; the "What" column would run into chosen KSAs, including not only specific technical and professional skills but also character traits, such as "emotional intelligence," "persistence'' and "work ethics." The "How" offers specific ways in which certain attributes could be acquired at universities, through work experience, or by collaboration between universities and industry.

QFD will provide the optimum for identifying the priorities as well as the strength of the relationship between "Whats" and "Hows". After critically analyzing the results a framework would be suggested using the identified BPM practices in enhancing the KSA profile of an undergraduate. Using the results extracted from the QFD, Graduate profile ("Competency Cloverleaf") and the adaptation of Parasuraman's SERVQUAL model, the final outcome   –BPM Roadmap- will be developed.

DISCUSSION AND CONCLUSION

When it comes to the Sri Lankan context it has been identified is that there is very little or no experience in this area of proper implementation, with regard to both educators and their students. However, this leads to derive a more significant research problem, which is the challenge of in catering to the market need for BPM intensified graduates. Through the literature review on overall and in a more Sri Lankan perspective, it was discovered that BPM content was heavily driven by the educators' BPM-related research, and focused on the topics that are yet to enter the mainstream BPM practice, and therefore was largely unfamiliar to the employers. On the other hand, this could easily generate an impression of the content being irrelevant and not being up to date. Even though this is not an issue unique to BPM, it is critical that this be addressed in order to best align curricula to industry needs and trends, rather than to the theoretical aspects that have been covered traditionally.

Based on the extensive review of literature that has been done, future studies on BPM should mainly focus on providing a BPM framework that can be easily adapted by state university degree programs to meet the real world industrial requirements, while providing the competitive edge for the undergraduates hailing from the same discipline. To cater to this purpose, a comparative analysis of various practices adapted by state universities in BPM pedagogy, as well as recommendations and corrective actions should be carried out in enhancing the quality of each program.

RECOMMENDATIONS AND GUIDELINES FOR PRACTITIONERS TO DEVELOP A ROADMAP

Road mapping is applicable for many situations from setting scientific research agendas to industry direction to product and technology plans, especially in technology road mapping. The justification for calling the end outcome a BPM Roadmap is that, this is a framework consisting of a set of guidelines in helping curricula/guide developers and BPM practitioners to decide on the ideal BPM content for the Sri Lankan scenario. It also provides a foundation to educators (both at tertiary-institutional and professional levels) who are interested in integrating BPM education into their education/ training offerings. Hence the study presents a systematic way of how 'teachable' and relevant content has to be identified in a rapidly emerging field of IT enabled Management, where few or at times no offerings exist particularly within the Sri Lankan or even the Asian context. This framework also guides the construction of curricula, making sure that it sets a clear future objective and answers the critical "why-what-how-when" questions that define and explain a clear action plan for reaching the BPM objective in future.

The following are the four steps of the development of roadmap architecture that answer the "why-what-how" questions and lay out the required actions, or the "to-do's."

- The first step is to define the domain of the roadmap [What programmes and industries are focused], the objectives, and strategy for achieving those objectives - the "why" of roadmap. The roadmap's definition and strategy will include market and competitive assessments for graduates hailing from IT enabled Management discipline.

- The second step is to define the direction, or the plans - the "what" of the roadmap. The direction includes challenges, the architecture and evolution of the solution, and measurable performance targets to achieve the objective: which will be the set of BPM concepts, standards, tools and other theoretical aspects

- The third part of the roadmap will describe the evolution of teaching and learning methods that will be used to achieve the objective - the "how" of a roadmap. The "T&L roadmap" defines the various methods that will be used to implement each part of the architecture, emphasizing on the most appropriate ones. [Industrial training programme, simulation games for BPM education, team-based learning, brainstorming sessions, lab hours to practice on BPM s/w applications, industry visits and partnerships]

- The fourth part defines the action plan and risks - the "to-do's" of the roadmap. The action plan identifies the key development actions, resources required, risks, challenges faced by practitioners and future improvements in BPM.

All parts of the roadmap are laid out over time - the "when" of the roadmap. A roadmap is constructed beginning with the key needs of the marketplace for capable graduates in BPM - a market-pull perspective, hence the QFD and graduate profile will serve as the other deliverables.

Deliverables will be validated in a wide sense utilizing validation models such as data triangulation, methodology triangulation, benchmarking, expert opinion and empirical evidence.

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