A Success Model for Business Process Management Implementation

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***Abstract*—Business Process Management (BPM) is currently being seen as the best way to facilitate process improvements. Since this concept is mainly a multidisciplinary subject, success in implementing requires considering various factors. In this paper, first seven success factors were explored through qualitative meta-synthesis based on previous studies; then a success model for presenting the effect of these major factors on BPM implementation is expanded. The identified factors categorized around (1) strategy, (2) people, (3) optimization and process management, (4) process architecture, (5) IT architecture, (6) project management, (7) standards and measurements. Each of these factors is described further by defining some sub-factors. Secondly BPM implementation success measures have been introduced and logical interrelationship between success factors and themes represented. This model should be considered before and during BPM implementation process by managers and business analysts in order to fulfill requirements.**

***Index Terms*—Business process management (BPM), BPM implementation, critical success factors (CSFs), BPM success model, qualitative meta-synthesis.**

I. Introduction

Within any business activity or enterprise it is crucial that the variable of "operational efficiency" is maintained at sufficiently high levels. Business Process Management (BPM) is the term used to encapsulate a process-driven approach to attaining enterprise operational efficiency [1]. Indeed; BPM in recent years has become as top priority in organizations wanting to survive the current competitive markets [2].

BPM is defined as "supporting business processes using methods, techniques and software to design, enact, control and analyze operational processes involving humans, organizations, applications, documents and other sources of information" [3].

For understanding the importance of Business process management (BPM), we can mention to the global market growth of it. At the end of 2006, the BPMS market reached nearly US$1.7 billion in total software revenue [4] and began to exhibit the characteristics of an early mainstream software market, i.e. proven technology, stable vendors, vendor consolidation and rapid user adoption. The BPMS market is also the second fastest-growing middleware (a type of integrative software) market segment; Gartner research estimates that the BPMS market will have a compound annual growth rate of more than 24 per cent from 2006 to 2011 [4].

Business process management helps organizations by providing real benefits such as Automation of Standard Procedures and Processes, Ability to Visualize, Simulate and Trouble-Shoot Business Processes, Change Business Rules and Processes without Impacting Underlying Applications, Manage and Monitoring the Performance of Operations and Personnel [5].

It is clear that BPM implementation is a complex and difficult process that can potentially reap enormous benefits for successful companies and be catastrophic for those organizations that fail to manage the implementation process. The questions that arise are therefore: What are the critical success factors for BPM implementation? Which themes can be used to measure the success of BPM initiative?

The resulting framework of this study is suggested to be applied within individual BPM initiatives that will depict the essential elements to be care of. 'Success' is a complex phenomenon. Success in the context of this study is defined as the resulting status of when the intended goals of the BPM initiative are met to a satisfactory level. Following [6, 7].success factors within the context of this research are defined as those key areas where 'things must go right' in order to the BPM activities to proceed efficiently and be completed successfully.

This paper is structured as follows: First, BPM is defined from various perspectives and the historical roadmap to BPMS is explained; then, the BPM implementation framework is described; in the next step the research method applied in this study is demonstrated; finally, the critical success factors influence the success of BPM implementation are discussed and a model for BPM success is proposed.

II. Business Process Management

A business process is the complete and dynamically coordinated set of collaborative and transactional activities that deliver value to customers [8].

Business process management includes concepts, methods, and techniques to support the design, administration, configuration, enactment, and analysis of business processes. The basis of business process management is the explicit representation of business processes with their activities and the execution constraints between them [9].

Business Process Management Systems is a (suite of) software application(s) that enable the modeling, execution, technical and operational monitoring, and user representation of business processes and rules, based on integration of both existing and new information systems functionality that is orchestrated and integrated via services [10].

Business Process Management Systems are based on

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developments in both the business and IT domain. First, two major business trends that relate to BPM are Total Quality Management (TQM), Business Process Re-engineering (BPR) and is also closely related to Service Oriented Architecture [10]. Second, we can identify a rise in the implementation and use of new types of information systems like Enterprise Resource Planning (ERP) systems, Workflow Management (WFM) systems, Enterprise Application Integration (EAI), advanced planning systems and so on. What once started as the automation of a company's internal processes has now become digitization of supply chains [11].

To effectively understand the terminologies and features of BPM, one should start from an appreciation of the BPM life cycle. There are many views of the generic BPM life cycle, but we adopt Van der Aaslt et al.'s (Fig. 1) because succinctness and relevance [3]. According to them, The BPM life cycle consists of:

Fig. 1. BPM life cycle [3]

Process design: In this stage, fax- or paper-based as-is business processes are electronically modeled into BPMS. Graphical standards are dominant in this stage.

System configuration: This stage configures the BPMS and the underlying system infrastructure (e.g. synchronization of roles and organization charts from the employee's accounts in the company's active directory) .This stage is hard to standardize due to the differing IT architectures of different enterprises.

Process enactment: Electronically modeled business processes are deployed in BPMS engines. Execution standards dominate this stage.

Diagnosis: Given appropriate analysis and monitoring tools, the BPM analyst can identify and improve on bottlenecks and potential fraudulent loopholes in the business processes. The tools to do this are embodied in diagnosis standards. [3]

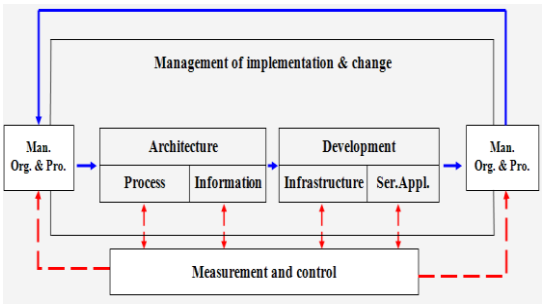

Fig. 2. BPMS implementation framework [12]

BPMS implementation framework shows the most important aspects that should be part of a BPMS implementation methodology (Fig. 2). The framework distinguishes three different areas, (1) the ongoing domain of the business organization itself, (2) the measurement and control function and (3) the BPMS implementation project area. It should also be clear that a BPMS implementation is a continuous process consisting of many different projects. This continuous character is shown in the framework by the blue line. When implementing a BPMS it is important to understand the underlying principles of Business Process Management [12].

III. Research Method: Qualitative Meta-Synthesis

Meta-synthesis is perhaps the most well developed methodology for synthesizing qualitative studies. Meta-synthesis is 'research of research' which incorporates analysis of the theory, methods and findings of existing qualitative research studies and subsequent synthesis of these insights to provide new understandings of the phenomenon [13].

In our study, we are interested in critical success factors of BPM and are attempting to extract factors influencing BPM implementation in organizations. Most of these papers are qualitative studies without quantitative data. Therefore, meta-synthesis might be an appropriate method for us to achieve a comprehensive synthesis of factors based on 24 primary qualitative studies.

This paper includes two sections: in first section, qualitative meta-synthesis was conducted to extract factors influencing BPM implementation in organizations. Our study adapts Noblit and Hare (1988) seven-step approach, which encompasses the following phases: getting started, deciding what is relevant to the initial interest, reading the studies, determining how the studies are related, translating the studies into one another, synthesizing translations and expressing the synthesis. We categorized the seven-step process into three major steps: selecting studies, synthesizing translations, and presenting the synthesis [14]. As a result of investigation, expressing the synthesis, we presented our new metaphor in seven CSFs' clusters.

In second section of this article, we will expand a theoretical success model by exploring the understanding of success factors and the influence of these factors on BPM implementation success. BPM success is ultimately determined by success measures through three themes: process efficiency, process quality, and process agility [16].

IV. Research Context

A. Critical Success Factors for BPM Implementation

CSFs in general have been one of the earliest and most actively researched topics. They can be defined as a limited number of areas, in which results, if they are satisfactory, will assure successful performance [15]. According to this definition, our purpose is to define the groups of CSFs that influence the success of BPM implementation.

As described before, applying meta-synthesis method, seven clusters are identified. The extracted categories are based on literature review and the references which these factors extracted from are represented in this sub- section.

B. Strategy

Strategy required two approaches. Firstly, there needs to be to be a clear link between the corporate strategy and the company's core processes. And secondly, whenever the corporate strategy is altered, the required process changes need to be reviewed [16]. Different researchers indicate the role of alignment between business objectives and the goal of the BPM efforts as an essential element for the success of projects [11]. Strategy is characterized further by following sub factors such as: strategic alignment [17]-[30], top management support [31], [23], [26], [5], [32], [33], [20], [34], [12], [5], governance [21], [31], [24], [26], [16], [12].

C. People

The people in BPM context refers to the individuals and groups who continually enhance and apply their process related expertise and knowledge [37]. People are one of the most important elements in the business process change since processes should be conducted by people in organization [11]. The factor can be further described by two sub factors : management of people [35], [21], [24], [36], [26], [11], [16], [5], [33], [27], [32], [25], [22], [19], [18] and roles, responsibilities and skills [24], [26], [11], [17], [25], [32], [20], 23,15,18,19,22,12,30,33].

D. Optimization and Process Management

Optimization and process management focus on the management and improvement of cross functional processes. This involves continues monitoring, evaluation, measurement (e.g. cost, quality, time) and process innovation [38]. Process management teams use a standard approach to navigate process analysis and design [19]. This factor includes the following sub factors: process management [5], [22], [19], [18], [33], [34], [31], [36], BPM methods [35], [21], [31], [24], [11], [16], process improvement methodology [34], [18] , [19], [22], [32], [20], [12], [25], [30], [15].

E. Project Management

Lack of suitable project management is one of the important problems that organizations are faced during the BPM implementation [11]. It is the discipline of planning, organizing, securing and managing resources to bring about the successful completion of specific engineering project goals and objectives [39]. The following sub factors explain project management; project planning, project executing and project control [23], [11], [36], [12], [33], [32], [18], [30], [25]

F. Process Architecture

Existing literature specifically recognized the vital role of process architecture in BPM efforts. The role of process architecture in structural design of general process systems and applies to fields such as computers (software, hardware, networks, etc.), business processes (enterprise architecture, policy and procedures, logistics, project management, etc.), and any other process system of varying degrees of complexity is very important [40]. Process architecture in a BPM Success context can be further characterized with two other sub factors: change management [30], [18], [26], [12], [22], [20], [19], [32], [17], [15], [33], [34] and process modeling [31], [12], [30], [34], [32], [11].

G. IT Architecture

The IT architecture is an organized set of consensus decisions on policies & principles, services & common solutions, standards & guidelines as well as specific vendor products used by IT providers both inside and outside the Information Technology Branch (ITB) [41]. IT architecture is explained further by the sub factors such as: information technology [16], [11], [24], [22], [21], [19], [18], [30], [15], [17], [12] and BPM suites [36], [33], [31], [26].

H. Standards and Measurements

Performance measure refers to measurements of the processes, project and people performance. The processes performance should be measure correctly to compare them with the goals and benchmarks and choose the suitable process for change in addition of assessment of the improvement. BPM projects need some metrics and standards to monitor the progress and ensure that the goals are achieved [11]. It is explained by these sub factors: Measurement techniques [5], [32], process performance measurement [17], [18], [20], [15], [11], [31], [23], [19], [22], [12], [27], [32] standards [15], [25], [31], [12], [30].

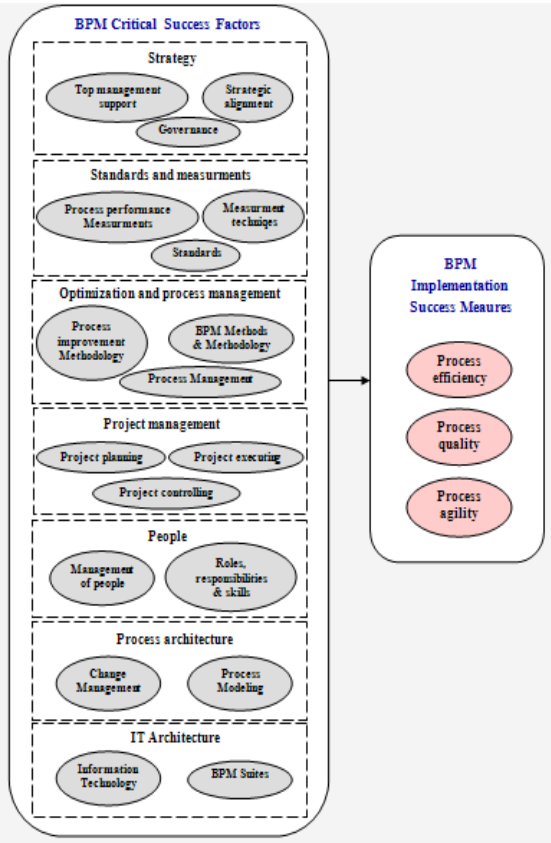

Fig. 3. BPM success model

I. BPM Implementation Success Measures

"Success" is a complicated multi-dimensional phenomenon. Hence, having a correct and complete set of measurement dimensions is important. Thus, during this study we attempt to introduce major success measures of BPM implementation.

BPM implementation success should only be achieved

when BPM initiative leads to measurable degrees of success measures. In terms of success measures, three dimensions were highlighted: process efficiency, process quality, and process agility. Process efficiency attributed to the application of the lean process improvement methodology and to the automation of the processes on the technology platform [16]. Process Quality comments were consistent with the view that BPM can reduce processing errors as well as improve process consistency [42]. Process agility comments were consistent with the statement that BPM architecture allows processes to be changed more easily than with hard-coded applications [43].

V. Success Model for BPM Implementation

BPM implementation success in particular can be very complex; it will have success factors that change over time as priorities and capabilities are moving, those in different contextual situations (e.g., country, organizational size or maturity, project purpose, etc.). Based on the literature, we classified the mentioned success factors in to seven clusters with: (1) strategy, (2) people, (3) optimization and process management, (4) process architecture, (5) IT architecture, (6) project management, (7) standards and measurements. Each cluster to be characterized by some sub constructs.

On the other hand, BPM implementation success can be evaluated through three success measures included; process efficiency, process quality, and process agility. We summarized these factors in a theoretical model (Fig. 3).

VI. Conclusion

The challenges of BPM implementation have been widely cited in the literature but research on the critical factors for initial and ongoing BPM implementation success is rare and fragmented. This study aims to improve understanding of BPM implementation success. CSFs may ensure effective BPM implementation and a realization of the promised benefits. Factors affecting BPM implementation are complex and abundant. A total of 7 clusters for BPM implementation have been classified based on a research qualitative meta-synthesis method. For each cluster some constructs are defined based on literature. It's expected to achieve some improvement in business processes by BPM implementation that can be measured through; process efficiency, process quality, and process agility.

It is hoped this model assist organizations to implement PMP successfully. The success model presented here can be further validated with empirical evidence from case or survey data and can provide insights in to how the factors interrelate to each other.

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