An Integrative Model of IT-Enabled Business Process Change: Causal Structures in Theory, Research and Practice

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Abstract

Although various researchers have addressed the topic of BPC success, BPC still suffers from a lack of knowledge on adequate theories and methods. This lack of knowledge is also evident in prominent BPC models. Research outcomes produced to some extent conflicting results and few reliable generalizations. The development of a theory that is falsifiable, generalizable, criticizable and useful is indispensable for future BPC research.

The purpose of this research is to provide an understanding for successful BPC that is grounded in relevant theories, prior work on BPC and case-based evidence. The outcome is an integrative model for IT-enabled BPC, which proposes causal structures between different impact factors. The proposed model presents a first step toward a theory for BPC success and prepares the ground for further research in this field.

1. Introduction

In the 20 years since the fundamental articles of Hammer and Champy [1] and Davenport [2], numerous researchers have embraced the topic of business process change (BPC) in organizations and its implications for organizational design [3]. To this day, a huge number of empirical research studies including numerous case studies exist that examine the topic of BPC success.

BPC or business process transformations\(^1\) are often complex initiatives, which are frequently associated with high costs for the organization. Consequently, it is not surprising that the failure rates of BPC initiatives remain high. Between 60% and 80% of the organizations’ initiatives to improve their efficiency and effectiveness via rethinking and redesigning their business processes still fail [4]. Therefore, it is of utmost importance that researchers and practitioners determine the critical factors driving BPC success.

Various researchers have addressed the topic of BPC success over the last years. However, their research outcomes produced to some extent conflicting results and few reliable generalizations. Till today, none of the proposed success factor models for BPC (e.g., [3][5][6][7]) managed to prevail. Markus and Grover [8] stated that the field of BPC still suffers from a lack of knowledge on adequate theories and methods. This lack of knowledge is also evident in prominent BPC models and leads to the following shortcomings. First, the majority of research models for BPC success are rather atheoretical (i.e., [3][7][9]). Most of them fail to evaluate the identified BPC success factors from different theoretical angles. Second, another group of researchers makes theoretical assumptions on only specific causal relations, e.g., impact of IT or change management on BPC success (i.e., [5][10]), which sometimes stand isolated in the overall context of BPC success. Third, some research models on the topic of BPC success stem from only one or few case studies in domain specific settings (i.e., [11][12]) which also limits the generalizability power of these research results. The short summary of existent research on the topic of BPC shows that the field itself is still rather disorganized, with little prospect of classifying or comparing the various research streams [4].

The development of a BPC theory is indispensable [13] to answer questions on how and why BPC initiatives succeed or fail. The purpose of a theory is the conduction, coordination, explanation and prediction of phenomena. With a theory the crucial determinants of a problem can be constituted and their relations to each other discovered [14]. Theory also

\(^1\) Both definitions are used synonymic in this paper.
holds the advantages of being falsifiable, generalizable, criticizable and useful [14]. The lack of consistent and generalizable knowledge on the topic of BPC success emphasizes the necessity for a theory [8].

In this paper, we propose an integrative model for IT-enabled BPC, which presents a first step toward a theory for BPC success. The purpose of the model is to provide an understanding for successful BPC that is consistent with the state of the art of research and grounded in theory. We aim to identify the theoretical rationale for each impact factor and specify propositions for each causal relation of the integrative model. Underpinning this aim, the principal objectives of the paper are threefold. (1) We strive to identify the relevant theories that establish a basis for the theoretical model. This paper proposes a novel combination of four underlying theories: the resource-based theory, the socio-technical system theory, the organizational theory and the leadership theory. (2) We aim to investigate the impact factors for the success of BPC initiatives grounded in a detailed screening of relevant BPC cases. (3) We integrate prior BPC models and the IT-value perspective in the development of the model.

The structure of the paper is as follows. In Section 2, we present a summary of the current research in this field. Section 3 outlines the relevant theories, which inform the model. Section 4 depicts the BPC case study sample. Section 5 describes the integrative model and its constructs. In Section 6, we conclude the paper and present our considerations regarding research and practical implications.

2. Related Work

Over the last two decades, the success of business process change has been studied through several theoretical and practical lenses. Two dominant streams of research can be identified. The first group of researchers (e.g., [3][6][15]) address the topic of business process change primarily from an organizational change perspective, while more recently a second group of researchers (e.g., [10][16][17]) analyze the impact of IT investments on organizational performance from a process-oriented perspective. Both streams of research inform our choices concerning the impact factor selection and the modeling of their interrelationships.

The most prominent models analyzing the critical success factors for BPC (i.e., [3][6][15]) share the same assumption, namely, that successful BPC is strategy-driven. In this respect, BPC is always a strategic change [6]. Top management holds a key role in supporting the respective strategic change initiative while also encouraging a change ready organizational culture [18][3]. Often this is referred to as establishing an innovative organizational environment, which assumes a central role in most BPC models [3][6].

The success of BPC also depends on the quality of the implementation process [4]. Therefore, BPC needs to be accompanied by change management to ensure joint efforts between managers and employees. Grover [15] argues that a lack of change management inhibits the success of BPC projects with respect to processes and people factors. Bearing this in mind, it is no surprise that all BPC models (e.g., [3][5][6][15]) propose an alignment of process and change management practices, along with the change environment, in order to improve business processes and obtain measurable and sustainable competitive performance gains.

Huiizing et al. [5] add an interesting perspective to common BPC research models: the concept of fit and organizational performance in change projects. Their framework distinguishes five dimensions: level of ambition, breadth, depth, planning, and coordination of the change process. Based on thorough empirical verification of their research framework with 90 organizations Huizing et al. [5] conclude that the ambition for change has to be balanced with the organization’s ability to change. They further identify that “the higher the level of ambition, the larger the number of critical activities […] that need to be tackled and the more organizational aspects that have to be changed […]” [5]. Even though theoretical and practical evidence highlights the importance of the dimension level of ambition or project scope, none of the prominent BPC models (i.e., [3][6]) incorporate it as a critical success factor for BPC.

The employment of the dimension IT and its relation to BPC success has produced contradicting results. While some researchers argue that IT poses an important catalyst and enabler for BPC [4], others argued that IT may not necessarily be a critical success factor for BPC [3][6][15]. Besides the ongoing debate on the business value of IT, the effect of IT on business performance has in fact often been contested [9][20][17]. For instance, the relationship between IT investment and firm performance through an input-output perspective is well described in production function and process-oriented models [16]. Particularly, process-oriented models offer helpful insights on how IT can provide business value through the use of business processes. Soh and Markus [19] introduced a conceptual framework which posits that IT investments lead to IT assets (IT conversion process), IT assets to IT impacts (IT use process), and IT impacts to organizational performance (competitive process). Melville and colleagues [16] also introduce a process-level model, which depicts that IT resources

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and complementary organizational resources have to be combined into a business process which then yields business process performance. Recently, Trkman [4] has argued that the value of IT for successful BPC should also be measured at the process level, since the prime effects of IT are in fact expected to be realized at the process level [16].

In summary, analyzing prior BPC models reveals that (1) BPC projects should be embedded in a strategic initiative and (2) supported by the top management; (3) an innovative organizational environment is necessary to absorb the change; (4) change management should accompany the change initiative; and (5) it is important to consider the level of ambition and its impact on critical activities and organizational aspects when undergoing a BPC project. Additionally, we analyzed the relation between IT, business processes and organizational performance from process-oriented perspective. This analysis discloses that (6) a real fit between IT and business processes must be established in BPC research and (7) the value of IT for successful BPC should be measured at the process level.

3. Theoretical Paradigms Used for the Model Derivation

The resource-based view (RBV) of the firm presents the primary theoretical foundation for our model development. The RBV is a powerful theory for understanding how resources are exploited through business processes to gain a competitive advantage [20]. However, a limitation of the RBV is that it falls short to specify the underlying mechanisms by which the resource exploitation is accomplished [16]. We therefore rely on a secondary set of theories such as the socio-technical systems theory, the organizational theory and the leadership theory to inform our understanding of successful BPC.

To motivate the selection of our primary and secondary theory base, we begin by summarizing the theoretical paradigms of each theory.

3.1. Resource-Based View of the Firm

According to the paradigm of the RBV of the firm, organizations achieve based on certain, e.g. valuable and rare, resources long-term competitive advantages [21][22][23]. Within the RBV, firms are characterized as a conglomerate of productive, physical and human resources. The productive opportunity of a firm results from the input of firm resources.

These can be classified into three categories: first, the physical capital resources, e.g. technologies, assets and raw materials; second, the human capital resources, e.g., intelligence, experience and relationships; and third, organizational capital resources like formal reporting structures as well as controlling and coordinating systems. Barney [23] argues that resources of a firm and its capabilities lead to a competitive advantage that is valuable, rare, imperfectly imitable and non-substitutable. The RBV explains the differences in performance – at the process level – in terms of types of resources and capabilities that different firms control. Ray et al. [24] further argue that resources can only be of value to an organization if they are exploited in these processes.

In a nutshell, the RBV constitutes an impact of physical, human and organizational resources on organizational performance, which are exploited at the process level.

3.2. Organizational Theory

According to Weber’s organizational theory [27], the organizational structure has an impact on the organizational performance. A wide consensus exists that a good organizational structure is a crucial prerequisite for the productive opportunity and the effectiveness of an organization. Nevertheless, a good organizational structure does not necessarily lead to high organizational performance [28], while a bad structure may result in reduced organizational performance. This leads to the following proposition: the quality of the organizational structure has an impact on allocation of responsibilities, decision-making, controlling and gratification [29].

In addition, the organizational environment has an impact on the organization and its projects. Note, in this paper we concentrate on the project perspective. Therefore, we consider more intra-organizational factors and less the external environment like socio-cultural, economic and political factors. In combination with the environment, organizations are faced with the major challenge to react in a fast and appropriate way to shifting conditions. An organization has to establish a culture for learning to motivate employees on all levels to embrace change. This leads to the following relationship: organizational culture has a significant influence on the organizational performance [30].

In summary, organizational theories depict an impact of organizational structure and culture on organizational performance.

3.3. Socio-Technical System Theory

According to the socio-technical system theory (STS), an organization is a social-technical system that consists of two independent but interacting subsystems. These subsystems are the social and the technical system [25]. To accomplish various upcoming tasks,
the social and technical elements have to interact. This leads to a bidirectional relationship between technology and humans. In accordance to Appelbaum [26], STS is probably the most extensive empirical and conceptual approach that considers the participation of employees. Both the integration of organizations’ employees and the appropriate application of technology are indispensable. Therefore, both factors have a significant impact on the overall organizational performance.

3.4. Leadership Theory

Leadership theories postulate an impact of managers (“leaders”) on organizational performance. In accordance to Winston and Patterson [31], leadership is defined as the process by which a leader—one or more people—selects, trains, equips, and influences one or more persons to help achieve organizational objectives. The impact of managers differ between a direct and indirect impact [32]. An example of direct impact is strategy selection, while an indirect impact is the manager’s effort to increase employee commitment.

Furthermore, Campbell [33] also stated that leadership has a significant impact on organizational performance. Kaiser et al. [34] also identifies this relation, but they additionally consider the employees. The more effective the leaders are, the more committed, motivated and performing the employees become.

In a nutshell, leadership theories constitute an influence of management commitment, goals, strategy and visions of management on organizational performance.

4. BPC Case Study Sample

For this paper, we applied a detailed screening of literature to assess relevant BPC cases. We used “business process”, “business process change”, “BPC” and “business process transformation” as the key words for the initial literature research. In addition, we combined each key word with the appendix “case study”. After the initial screening, we identified more than 500 references for each combination of key words and “case study” from online database services (e.g., Emerald, EBSCO, Science Direct and Google Scholar). To determine the relevancy of these articles, we further explored titles, abstracts and keywords. In summary, 83 case studies on BPC were collected from research journals, conference proceedings and book chapters. By casting such a wide net for potential BPC cases, we excluded case studies with the following attributes: (1) no or very little information about the case, (2) no or very little information about the impact factors for the success of the BPC initiative, (3) focused on the technology, not on the BPC initiative.

A detailed screening of the cases to assess the completeness and relevance of the actual case descriptions yielded a final sample of 59 case studies. The final sample consisted of a wide set of international BPC initiatives, 38 in private and 21 in public organizations. The cases were collected between 1993 and 2010 and had an average length of 13 pages.

We coded the critical success factors based on their frequency of mention. This led us to the following set of frequently cited success factors in practice: organizational factors, management commitment, business processes, market forces, resources (IT-related and human factors), change management activities, goals, business process performance and others.2

5. Integrative Model for IT-enabled BPC

The proposed integrative model for IT-enabled BPC (see figure 1) is grounded in the following three sources: (1) the success factors identified in the 59 case studies, (2) the previous BPC models and the IT-value model proposed by Melville et al. [16], and (3) the relevant theories discussed on chapter three.

The model includes only success factors, which influence the performance of business processes and in a broader sense impact the overall performance of an organization. In most of the previously described theories and models the factors organizational performance and overall productivity of an organization assume a central. In accordance with Ray et al. [20], we propose to adopt business process performance as an alternative central impact factor. One reason for this decision is that the performance of business processes, which is measured by their effectiveness and efficiency, is that an organization might excel in some of its business processes, but is only average in others and in some even below average [20]. Even though, an organizations overall performance depends on all of these business processes, aggregating the outcomes of each business process renders it nearly impossible to examine whether a particular set of resources and/or capabilities actually contributes competitive advantages for an organization [20]. Thus, in accordance with the RBV we adopt business process performance as another central impact factor. This selection allows for the identification of what resources and capabilities influence the performance at a process-level.

2 The excel list with all 59 case studies analyzed is available upon request from the authors.
The following impact factors inform the model: resources (i.e., IT, human, others), change management, organizational culture and structure, project management, project scope and management commitment. The variable business processes adopts a mediating role in the model. Based on Melville et al. [16], we propose that the factors resources (IT, human and others), project management, change management, project scope and management commitment impact business process performance via intermediate business processes. The proposed model comprises two domains: (1) BPC initiative and (2) organization. In the following chapters, we discuss the impact factor selection in detail and propose first causal relations of each impact factor at the two domain levels.

5.1. Resources

The kind of resources (e.g., technical, financial, or others) available to an organization for completing specific tasks often directly impacts the success of BPC initiatives [20]. The term resource is not only tied to material goods but also includes immaterial goods such as the organizations’ human resources and their knowledge, skills, know-how and talent [23] [35]. IT-based resources can be separated into IT infrastructure, human IT resources and IT-enabled intangibles such as customer orientation and knowledge [36]. Other resources comprise financial, organizational and physical resources [16].

We meld the various identified resources into two impact factors: (1) IT-resources and (2) human and other resources. Because of their value for an organization’s performance, which can be explained by the RBV [37], IT-resources are assigned a separate role in the integrative model. Researchers conceded that technical, human or other resources, by themselves, do not pose a source of competitive advantage for an organization [16][20]. Resources only add to the competitive advantage of a firm whenever they are used to ‘do something’ [20]. In the context of BPC this leads to the conclusion that resources need to be exploited through business processes. This relational linkage may be summarized as follows:

Proposition 1: Resources such as information technology, human capital and others impact – mediated by the business processes – the overall performance of these business processes.

5.2. Change Management

Launching a BPC initiative is not likely to succeed if the people and the structure of the organization are unprepared for and incapable of change. Change management refers to the processes employed on a BPC project to ensure that changes are carried out in a visible, controlled and orderly way. In that sense, change management comprises communication and motivational activities, undertaken to govern the effects of BPC systematically [3]. The relevance of continuous change management and employee participation for successful IT-enabled process-oriented change can also be explained by the socio-technical systems theory [26]. The second proposition that informs the causal relations on change management in the integrative model can be summed up as follows:

Proposition 2: The implementation of consequent change management parallel to BPC initiatives has – mediated by the business processes – a positive impact on the performance of these business processes.

5.3. Project Management

Since BPC initiatives are usually project driven, the variable project management assumes a central role in the proposed model. The quality of the project management as well as the competence level of the assigned project manager impacts the success of a BPC project, and thus the performance of the changed business processes, which then may lead to improved organizational performance [38]. According to Crawford [38], competence refers to the skills, knowledge, personal characteristics and demonstrated performance that a project manager exhibits at the job. The causal linkage between project management and project success has been discussed from a BPC perspective [3] and in research on the implementation of ERP-systems [9][39]. Besides the competence of the employed project managers, Karimi et al. [9] operationalize the impact factor project management through the tools and techniques employed for the organization of the project and time planning.

The identified causal relation between project management and business process performance leads to the formulation of the following proposition:

Proposition 3: The project management including aspects of project planning and organization impacts – mediated by the business processes – the overall performance of these business processes.

5.4. Management Commitment

The impact factor management commitment refers to the approval, sponsorship and support of the BPC initiative through the organizations’ top management (i.e., [9][4]). Classic project management research also acknowledges the importance of top or senior management commitment for project management success [40]. Furthermore, if top management fails to provide the project management with the necessary
empowerment, the project will not produce the anticipated results [41].

Figure 1 illustrates that management commitment is expected to impact business processes mediated over the variables change and project management. Yetton et al.’s [42] model on project performance also depicts a mediating relationship of senior management commitment for end-user resistance and project completion. End-user resistance can only be reduced through continuous change management. Project completion, as described by Yetton et al. [42], depends on the project management of BPC initiative.

Nonetheless, based on the current state of theory and research, we cannot exclude a direct causal relation between top management commitment and business processes.

The variable management commitment is assumed to exhibit the following causal relations:

Proposition 4a: The commitment of the top management impacts – mediated by the business processes – the overall performance of these business processes.

Proposition 4b: The commitment of the top management impacts – mediated by the change management activities and the business processes – the overall performance of these business processes.

Proposition 4c: The commitment of the top management impacts – mediated by the project management activities and the business processes – the overall performance of these business processes.

5.5. Project Scope

The integrated model also includes the impact factor project scope. The scope of a project is among time and costs one of the classic dimensions to classify the success of a project [43]. Project scope encompasses the goals, content and breadth of a BPC initiative [44].

Even though empirical evidence exists showing that the impact of BPC projects on organizational performance is related to the projects’ scope [45], this impact factor has only been marginally recognized in existing BPC frameworks and models. Some researchers provided empirical evidence to believe that a high project scope [45] or high levels of ambition [5] have a high impact on firm performance. However, Ozcelik [45] also identifies that the failure risk of BPC projects can increase beyond a certain level of scope.

Studies of ERP-systems implementations also showed that projects with higher functional and organizational scope resulted in significantly increased positive share-holder returns [46] and thus increased business process performance [9].

Additionally, we propose that the impact of project scope on business process performance is mediated through the activities of the project management [45]. In order to better investigate this issue empirically we present this relationship as a dashed line in the model (see figure 1). The fifth proposition can be summed up as follows:

Proposition 5: The scope of a project impacts – mediated by the business processes and potentially through the activities of the project management – the overall performance of these business processes.

5.6. Business Processes

The business processes and their performance are modeled in two autonomous factors. The reason for this decision is that the activities of a business process often reside in a “black box” [16][47] and are therefore difficult to measure. From a RBV perspective, business processes offer a framework through which to examine the point of direct resource exploitation [16]. For the proposed research model we adopt Davenport’s [48] understanding of business processes. He defines business processes as „the specific ordering of work activities across time and space, with a beginning, an end, and clearly identified inputs and outputs” [48].

In line with the work of Melville et al. [16] and Karimi et al. [9], business processes assume a central role within the model and most impact factors are mediated through them. The corresponding proposition is as follows:

Proposition 6: The business processes impact as a moderating variable between the independent variables the overall performance of these business processes.

5.7. Organizational Culture and Structure

The second domain of the model is the organizational environment in which the BPC project is embedded in [16]. At this domain, the organizational culture and structure present the most important impact factors. The impact of the organizational structure on the overall firm performance is well described in organizational theory research. Kettinger and Grover [3] depict that the structure of an organization impacts the success of BPC initiatives. The term organizational structure often encompasses several elements (e.g., hierarchy systems, responsibilities, tasks, rules and the extent of bureaucracy) [49][3] and most definitions are rather imprecise. Therefore, we follow Vroom’s [50] understanding of organizational structure, who defines it as „the way in which an organization is built up, the way in which relations and relationships between people in an organization are more or less regulated”.

Furthermore, we model impact factors that can be summarized under the term (intra)organizational culture. Kettinger and Grover [3] propose the umbrella
term ‘change environment’, which refers to the organizational culture and cultural willingness to change. In reference to the organizational learning theory and the work of Skerlavaj et al. [18], the ability of an organization to learn can also be identified as success factor for BPC.

The impact factors organizational culture and structure were placed purposely outside of the direct BPC project into the second domain. Even though the impact of the variable for the entire BPC project can be established, the impact of this factor may be difficult to validate empirically. It is not plausible to assume that the organizational culture and structure only impact one factor, for instance the business processes. Rather, we argue that the structure and other organizational factors such as culture and ability to learn impact the overall performance of the entire company and thus the performance of the respective BPC initiative. This causal relation may be summed up as follows:

Proposition 7: The organizational culture and structure impact the success of the entire BPC initiative.

5.8. Business Process Performance

Organizations strive to improve the performance their business processes to achieve the maximum of output with a minimum of input [51]. This relation is measured by efficiency [52], which is defined as the extent of resources used and needed to achieve the desired result – output per unit of input [48]. Efficient business processes achieve the desired output with a minimum of effort. Thus, the process efficiency primarily addresses the benefit of the process owner – the organization. To stay competitive means not only “doing the things right”, it also means “doing the right things” – the needed products and services have to fulfill the customers’ expectations [53]. Thus, the performance of business processes is measurable through efficiency and effectiveness criteria.

According to Harrington [53], the effectiveness of a business process is defined as the extent to which the output of a process meets the needs and requirements of its customers. Therefore, the desired products or services, which are the results of business processes, are related to the effectiveness criterion.

In line with Melville et al. [16] and Ray et al. [24] we postulate that the performance of the business processes may impact the organizational performance. As suggested earlier, this may not always be the case. Ray et al. [24] assert that not every change in a process’ performance directly impacts the overall organizational performance. This phenomenon can be explained by the fact that some process changes can compensate one another or the level of complexity in this specific context. Considering that organizations are open systems [3], they are exposed to several environmental factors. Consequently, the performance of an organization depends on several global, economical, socio-cultural and political factors.

The causal relation between business process performance and organizational performance can be distilled into the following proposition:

Proposition 8: Changes in the performance of business processes can (but do not have to) impact the overall performance of an organization. (However, organizational performance changes may not always be measurable.)

![Figure 1: An integrative model for IT-enabled business process change](image-url)
5.9. Organizational Performance

The performance of an organization is theoretically the ultimate factor that is influenced by all impact factors and mediating factors. Similar to the performance of business processes, the organizational performance can be operationalized by efficiency and effectiveness criteria [54]. While organizational efficiency presents output-to-input-relations, organizational effectiveness describes the degree of goal realization in regard to the overarching organizational goals.

Due to the aforementioned difficulties of increased complexity and the problematic of quantifying BPC achievements at the organizational level, the focus of the integrative model is not placed on organizational performance, but rather on the impact factor business process performance.

6. Discussion and Concluding Remarks

This paper introduces a much needed integrated model for IT-enabled BPC. The model proposes causal structures between the factor business process performance and the various impact factors which are grounded in theory, prior work and case-based evidence. The introduced impact factors will allow future research to explore the potential success of BPC initiatives in a more systematic manner.

The findings of our study have implications for both practitioners and researcher. By providing practitioners with insight into the most important parameters in BPC projects, the model serves as a basis from which project and process managers can now manage what is typically a poorly-understood, complex, and dynamic situation.

From a theoretical standpoint, the results contribute to the existing literature in a number of ways. The paper makes a contribution to BPC literature by providing insights on the drivers of BPC success. Moreover, the results show that existing theories like RBV, organizational, leadership and socio-technical systems theory are well suitable for understanding and explaining the complexities in BPC projects. As a theory development paper, we did not only identify the relevant success factors but also derived causal structures and relations between them.

One important differentiation of the proposed model to prior BPC frameworks [3][6] is that we expect the impact of BPC initiatives to take place at process level. In accordance with recent IT-value research, we moved the major focus of the change impact to the business process performance [16][24]. This change presents a more appropriate way from a resource-based point of view [20]. Previous research has also frequently argued that BPC success at an organizational level is not easy to assess, particularly due to various political aspects [12]. Measuring the success of BPC projects at the process performance level prevents such discussions.

Our model also views IT-resources to be of high importance for BPC. No BPC initiative can afford to ignore the role of IT [4], because IT offers extensive efficiency and effectiveness benefits [16]. Additionally to IT, the research model also identifies an impact of the external environment on the overall success of the BPC. However, to this point our knowledge is still incomplete about which and how organizational characteristics moderate the degree of business process performance. Much conceptual work has been conducted on this issue [3][6] but little empirical work, which may represent a potentially fruitful area of future research.

Though we endeavored to offer a broader process-oriented and integrative model encompassing theoretical perspectives from IT and especially strategy, organization theory and human resource management as well as prior research and case-based evidence, our analysis is not without limitations. Most importantly, our work has only been conceptual and additional empirical is needed to validate the proposed causal structures. However, instead of conducting yet another case study, we recommend using meta-analysis methods such as case survey research. Case surveys can present a powerful method for identifying and testing patterns across studies [55].

7. References


