Reach and Range of Business Process Management – Findings in the Telecommunication and Chemical Industry

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Abstract

Business Process Management (BPM) has become an established management practice. Current literature in this field identifies maintaining a process-aware IT landscape and managing boundary-crossing relations as important functions in BPM. Regarding the former, we understand “BPM range” as the level of process-awareness in the IT landscape. As for the latter, we view “BPM reach” as the potential utilization of boundary-crossing relations. Based on these two dimensions, we propose a framework for exploring development paths in BPM implementations. This framework is then exemplarily applied in two case studies in the telephone and chemical industries. We are able to identify a development towards a higher level of BPM range in both industries while only the telecommunication company is looking to increase its BPM reach. Based on our empirical findings, we derive generalizable propositions for BPM development in both dimensions for future theory building efforts.

1. Introduction

In order to gain a competitive advantage and sustain it over time, an increasing number of companies use business process management (BPM) as best-practice management principle. In a recent study by Gartner, improving business processes\(^1\) has been number one priority by CIOs around the world [1]. BPM relies on prior research on Total Quality Management and Business Process Reengineering [2, 3]. In combining aspects from both approaches, BPM “[...] presents a more comprehensive array of improvement options” [4] that can help a company to foster process change and overcome the downsfalls of other management principles.

Organizations develop their BPM capabilities over time [5, 6]. Typically, this development is depicted in terms of rising capability levels. However, organizational BPM also develops in two other dimensions: Firstly, the dimension of IT usage in BPM and, secondly, the dimension of boundaries crossed in BPM. However, these two dimensions are only sparsely studied in research and, to the best of our knowledge, no integrating studies have been conducted.

With our research we try to close this gap by developing a framework of IT-process integration and boundary-crossing in the context of BPM. In a first attempt to develop new theory in the area of BPM, we instantiate this framework by means of two cases within the telecommunication industry and the chemical industry. Next, we analyze the resulting rich case study data in order to develop propositions for BPM states and development with respect to the presented two dimensions. These propositions can serve in future theory building efforts. Hence, the research objectives for this study are:

1. To develop a framework integrating the dimensions of IT usage and collaborativeness in BPM.
2. To assess the status quo and development path of two organizations in structurally different industries.
3. To derive propositions that explain potential differences between the organizations and allow for future theory building efforts.

In order to address these research objectives, the remainder of the paper is structured as follows: Section 2 builds the theoretical foundation by presenting a literature review, specifically on fundamental research in BPM and IT capabilities. Section 3 will build upon this related work and propose the conceptualization of a framework that will allow an assessment of both IT support and boundary-crossing relations in BPM. Section 4 will present our research methodology and give reasons for the selection of the cases. Afterwards (section 5), the qualitative interview data is presented and structured with help of the previously developed framework. Section 6 encompasses a discussion and interpretation of the results as well as the development of propositions for future theory building.

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\(^1\) In this article we use the simpler term process as a synonym for business process.
2. Related Work

2.1 Business Process Management

The notion of Business Process Management (BPM) has been primarily influenced by the concepts of Business Process Reengineering (BPR) and Total Quality Management (TQM). TQM can be considered an incremental and evolutionary approach focusing on continuous improvement and incorporating customer satisfaction as primary goal. BPR emerged in the 1990s and can be traced back to the works by Davenport and Hammer who reported on the growing implementation of radical business process change [2, 3, 7, 8]. In its core, BPR incorporates a revolutionary approach to redesigning the organizational structure and processes of a company, often with the help of information technology (IT), in a one-time undertaking. However, there is wide recognition in literature, that neither BPR nor TQM are comprehensive concepts but rather have to be regarded as complementary, constituting elements within the process-orientation of a company [9–12]. Hung states that “both incremental change and radical change can be viewed as parts of the continuous improvement efforts in organizations” [13]. Within this paper, BPM is regarded as a concept that combines these two perspectives and forms a comprehensive management tool to support what is commonly referred to as process change. Thus, we define BPM according to Ross and Perry as an integrated management philosophy and set of practices that includes both incremental and radical change in business process, and emphasizes continuous improvement, customer satisfaction, and employee involvement [14].

Central for this definition is the notion of the business process. However, definitions of this concept significantly vary within literature and are oftentimes rather vague [15]. We follow Smith and Fingar in defining a process as “the complete and dynamically coordinated set of collaborative and transactional activities that deliver value to customers” [12]. Furthermore, we recognize that most processes have to be considered cross-functional, spanning the “white spaces” within the organizational chart [16]. BPM as a holistic management approach therefore has to focus on changes within all organizational subsystems and be aware of interdependencies between them. Thus, adopting Kettinger’s and Teng’s perspective on BPR, we recognize that BPM “[…] is not a monolithic concept but rather a continuum of approaches to process change” [9].

2.2 BPM and IT Capabilities

The IT infrastructure of an organization has been identified as one of the key factors for attaining a sustainable competitive advantage [17], [18]. Developing a suitable IT infrastructure to react to changing business requirements also has continuously been a major concern among IS and business executives [19]. However, a variety of studies have addressed the issue that IT systems alone are not sufficient to provide an increase in performance, but that they must be carefully integrated to support the corresponding business processes [20], [21].

While this business-IT-alignment is considered critical, IT is still regarded a crucial factor for BPM [2]. Davenport and Short argue that IT can be more than just a useful tool for implementing BPR, thereby recognizing that “information technology and BPR have a recursive relationship” [3]. A literature review in the AIS senior basket of journals (Top 8: EJIS, ISJ, ISR, JAIS, JMIS, MISQ, JSIS and JIT) revealed a wide recognition of the significance of process-aware IT for our notion of BPM. Broadbent et al. state that successful implementation of BPR always requires a basic level of IT infrastructure [22]. Kettinger and Grover pointed out that IT is capable of enabling process change by streamlining and coordinating processes [23]. Earl identified three economic contributions that IT can offer for BPR. He outlined that IT can be used for information, coordination and to reduce the costs of production [15], [24]. Some authors also took a different perspective in regarding IT as a possible constraining factor in BPR by outlining that poor IT infrastructure can inhibit BPR success [25], [26]. More specifically, Dumas et al. observed that BPR has led to a reorientation of the general purpose of IT. They stated that “IT should not only support the automation of individual tasks, but should also be seen as an instrument for coordinating and interconnecting tasks and resources (e.g., people, physical assets, software applications)” [27]. We recognize that this change in IT focus from task-support to process-support is essential for enabling successful BPM. Thus, we regard the implementation of a process-aware IT landscape as fundamental for BPM success.

2.2 Boundary-crossing in BPM

Broadbent et al. identify and describe different functionalities of an IT infrastructure capability [28] utilizing a list of firm-wide infrastructure services [29]. Some of these services are boundary-crossing i.e. they extend beyond one functional area or even beyond the
boundaries of the organization. It was found that the capability to make use of boundary-spanning practices within and across organizations can be considered a key competitive factor for firms [30]. More particularly, our literature analysis revealed that crossing boundaries can also be seen as an important aspect in BPM.

For instance, Lindgren et al. found boundary spanning to be “[…] something essential to organizational renewal” [31]. Similarly, Chatterjee outlines the relevance of managing boundary-crossing relations stating that intra- and interorganizational linkages “[…] provide the platform for sharing ideas, pooling scarce resources (both physical and intellectual), and streamlining business processes” [32]. Clark and Stoddard see interorganizational process redesign as the logical extension of the business process change and interorganizational systems debate [33] while Bala and Venkatesh outline the importance of cross-enterprise process integration capabilities for the overall firm performance [34]. Furthermore, Guha et al. propose that business process change often requires “the proactive leveraging of boundaries and relationships” [35]. Therefore, we consider managing boundary-crossing relations to be an important issue for BPM.

3. Research Framework

In developing a framework of BPM infrastructure adoption we considered a broad range of literature from different IS research disciplines. While the emerging BPM literature has outlined a variety of possible dimensions for the development of such a framework [10, 36, 37] we focus on the two previously identified aspects, i.e. 1) the importance of a process-aware IT landscape and 2) the importance of managing boundary-crossing relations. By this we recognize that research on the comparatively new concept of BPM is just emerging and “most of the literature on BPM and the nature of business processes is fragmented […] and devoid of any thorough discussion of the field as a whole” [38].

Also, by focussing on top journal papers on BRP and TQM, we make sure to align with our notion of BPM as a combination of these two approaches.

Our primary goal was to develop a high-level framework that allows easy recognition of the current position a company holds within its individual evolutionary BPM path. To achieve this goal we suggest an adaptation of Keen’s reach and range model [17, 39] to match our previously identified dimensions. The concept has been used by a variety of authors within IS research [22, 28, 32, 40]. For instance, Bennett and Weill also use an adaptation to describe the use of electronic messaging in terms of its economic value and level of sophistication [40]. Following this approach, we suggest the notions of BPM reach and range which are later on used to depict the current BPM development state of a company.

**BPM range** is the level of process-awareness in the IT landscape

A process-aware information system supports process enactment. Thus, the activities in the corresponding process are scheduled with respect to the rules specified by the process [27]. Thus, especially the workflow management capabilities of the IT landscape are of central importance for enabling BPM. In this context, zur Muehlen defines three levels of business process integration: 1) process-level integration, referring to a coarse level of invoking services, 2) application-level integration i.e. triggering needed applications as a whole and 3) function-level integration that allows access to individual functions of
the invoked tools [41]. We use an adaptation of this classification to develop a scale for the BPM range dimension of our framework.

A) **Task support** refers to IT usage only within the fulfilment of individual tasks. While tasks are considered the constituting elements of processes [3, 7] IT usage on a task level has been outlined as precedent to the IT process-orientation [27] and thus forms the lowest level of possible process-awareness.

B) **Coarse process support** refers to a basic workflow capability of the IT. Here, IT is used for coordination of the individual processes of a business process [15, 24]. However, other systems are not directly triggered within the workflow.

C) **Application level process support** refers to an integration of the task level tools within the workflow. Thus, this encompasses process-aware IT usage for both information and coordination.

D) **Functional process support** means a tight integration with the application systems such that particular sub-functions can be accessed individually. Embedding functionality is generally done to reduce production costs by substitution of capital for labour [40]. A further development within this category is the reduction of interfaces [42] e.g. by embedding task level functionality into the workflow system.

The scale has four gradations but is defined as a continuum, i.e. there are no clearly defined boundaries. By this we recognize that companies can be in a transition state between the outlined categories and allow for a clearer overview of their BPM development paths.

**BPM reach** is the utilization of boundary-crossing relations within the process management efforts.

The dimension of BPM reach determines to what degree the processes extend beyond organizational boundaries and thus require the involvement of external actors in obtaining and changing these processes. In this context, the notion of ‘process reach’ is frequently used in IS literature [43, 44]. Other authors use the notion of ‘process scope’ to describe the same concept [45–47]. To derive the scale for this dimension we draw on two major concepts. Hall et al. define a spectrum of process breadth and specifically point out four levels on which companies redesign processes: 1) on a single activity level, 2) on an intra-functional level, 3) on a cross-functional level and 4) on a business unit level [48]. Swatman et al. propose a similar model [49] while Fiedler et al. add an inter-organizational perspective. They state that process change occurs either intra-functional, inter-functional or inter-organizational [47]. Several other IS researchers also distinguish between intra-organizational and inter-organizational scope [33], [35]. We combine Hall’s and Fiedler’s concepts and define a scale with four gradations:

1) **Intra-functional BPM reach** refers to a setting where most BPM efforts do not cross functional (e.g. departmental) boundaries. Companies with this overall reach are still focussing on restructuring functional areas rather than processes [16].

2) **Inter-functional BPM reach** refers to a setting where most process improvements reach across different functional areas. However, coordination of the efforts still lies within the boundaries of one business-unit or division.

3) **Corporate BPM reach** refers to a setting where most business processes are changed on a cross-unit level. Thus, improvement efforts cross the geographical or business related boundaries of a single unit but coordination still lies within the boundaries of the corporate company.

4) **Inter-organizational BPM reach** refers to a setting where the organizational boundary is crossed and external partners are actively involved in business process changes [50, 51].

Similar to BPM range, the reach dimension can also be seen as a continuum and thus allows smooth transitions between the categories. The completed reach and range framework is presented in figure 1.

### 4. Research Methodology

In order to address research objectives two and three, we conduct two exploratory, in-depth case studies. The multiple-case design was chosen in order to suit the need for comparison [52] and to allow for more profound theory building [53] as well as for a higher generalizability of the results [54]. We selected one firm from the telecommunication market and one from the chemical market. In both industries, companies face intense competition and are required to innovate on a continuous basis. The selected organizations have a significant market share and have shown BPM efforts in the past. The case selection was informed by a pre-study of 15 companies from a variety of industries. The selected cases best fit our theoretical perspectives. PhoneCo is among the top 5 telecommunication providers in Germany while ChemicalCo is a global player in the chemical market. Both firms have undergone significant changes in both their process and IT landscape in the past and thus were a perfect fit for our evolutionary perspective on the dimensions of BPM reach and range. A total of 37 semi-structured
expert interviews were conducted, pre-informed and structured with the help of a prior literature analysis. The interview guideline incorporated questions on the past and present BPM efforts as well as on planned future development that would influence the companies’ position within our theoretical framework. A detailed overview of the data collection is presented in Table 1. By this, we sought to get a comprehensive evolutionary overview on the firms BPM landscape which would allow for the derivation of trends within the two dimensions under investigation. Besides such specific questions, the interviews also included an open discussion on the topic and were as well open to other related aspects that the interviewees brought up. To achieve triangulation of data and insights, we conducted a minimum of five interviews in each firm, each with a participant from a different functional department [52, 55]. All interviews were performed in German and later on translated into English.

5. Qualitative Case Data

5.1 PhoneCo

PhoneCo is among the five biggest telecommunication companies in Germany with an annual turnover of nearly USD 1.5 billion (2008) and a total of 2300 employees at four major locations. With a variety of products in communication including DSL and VDSL as well as (mobile) telephony and IPTV, PhoneCo now has around 2.3 Million customers in the DSL and more than 630,000 in the mobile communication market. At PhoneCo, the objectives of BPM circle around documentation and optimization of organizational procedures. Furthermore, especially the more formal definition of workflows – as foundation of a workflow management system – is of great relevance. All core processes are documented in the notation of event-driven process chains (EPC) using ARIS Business Architect as the major BPM tool. Change management activities have been implemented and first process indicators were introduced. However, the company’s BPM is not yet ISO 9001 certified. All BPM activities are coordinated by the BPM department which currently has 24 employees and operates as a centre of excellence. Such structural setting seeks to establish strategic alignment of all BPM activities in general and to develop and synchronize company-wide BPM methods and guidelines in specific.

BPM Range: Regarding the workflow capability of their IT, PhoneCo has undergone some significant changes over the last years. In the past, the company did not have a work-flow tool at all. Processes were roughly supported by a tool that visualized the necessary steps. Today, their workflow management system ‘Atlantis’ currently supports all customer support processes that are triggered by phone calls and thus over 90% of all processes. E-Mail and white-mail triggered processes are not yet integrated due to the channel specific lack of interaction. However, connecting them to the workflow tool is planned for the future. In the past, the ‘Atlantis’ system was not able to interact with the various application systems on a task level. One executive stated:

“Then we have Atlantis as a workflow tool that, in the past, did not have any connection to the customer processes. It did picture the workflow but there were no interfaces to other systems. The employee had to jump back and forth between two systems. If Atlantis told him he needs to add a customer to the CRM system, he would open the CRM system and enter the new contact. Since this year it is possible to directly trigger certain processes in Atlantis.”

This lack of connection between different IT systems is still a major issue within the company. In the past, missing connections of the operational systems led to a chaotic environment where data was manually copied from one system and pasted into another one. Today, some application functionality has been seamlessly integrated, while in other areas there are still several

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<th></th>
<th># of employees</th>
<th>Turnover</th>
<th># of Site Visits</th>
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<th>Departments and Functions</th>
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<th># of Words Transcribed</th>
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<tbody>
<tr>
<td>PhoneCo</td>
<td>2,300</td>
<td>USD 1.5 billion (2008)</td>
<td>6</td>
<td>9</td>
<td>IT, Organization, Business Process Management, Sales, Controlling, Quality Management, Finance</td>
<td>625 minutes</td>
<td>54,402 words</td>
</tr>
<tr>
<td>ChemicalCo</td>
<td>1,300</td>
<td>USD 690 million (2011)</td>
<td>2</td>
<td>5</td>
<td>IT, Quality Management, Marketing, Controlling, Logistic</td>
<td>245 minutes</td>
<td>9,185 words</td>
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<td>Total</td>
<td>8</td>
<td>14</td>
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<td>870</td>
<td>63,587</td>
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While the issue remains important, steps have been undertaken to incorporate a tighter process network for the remaining internal processes. Overall, the company sees the importance of boundary-crossing processes and especially the advantages of integrating external partners. For one interviewee, the integration of partners was just a logical step towards further process improvement:

*If processes reach a certain level, the integration of external partners makes sense. [...] That is the next step in process optimization. Because currently, there is not much left that can be improved by quick fixes and optimizations.*

Table 2 presents an overview of the findings for PhoneCo.

### 5.2 ChemicalCo

ChemicalCo is part of a worldwide operating group and focuses on chemical products for key accounts. Chemical has around 1,300 employees at their two major locations in Germany and at 15 smaller ones worldwide. Furthermore, it has an annual turnover of about USD 690 million. Chemical products are sold in over 100 countries around the globe. BPM activities at ChemicalCo focus on process documentation and obtaining the ISO 9001 certification (since 1997). The company has no department which is fully responsible for all BPM activities. Instead, as the company is ISO 9001 certified, mainly quality management administers the necessary documents and BPM-related tasks. Once a year, an external audit company examines ISO certification-relevant process documentation. In many BPM projects, the IT department plays a moderating role. Regarding BPM notations and tools at ChemicalCo, the IT and the quality management departments do apply different standards. Accordingly, there is little exchange of process knowledge even between these two internal actors and the firm has to

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**Table 2**  Development of BPM reach and range for PhoneCo

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<th></th>
<th>Past</th>
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<th>Future</th>
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| BPM range        | • Only workflow in Atlantis, no connection to other systems  
|                  | • Reporting based on copy/paste from Excel      | • WfMS „Atlantis“ supports all the processes and integrates other systems  
|                  |                                                  | • Heterogeneous IT infrastructure (20 or more tools)  
|                  |                                                  | • 70% of the systems are integrated into Atlantis  | • Better internal connection of processes     |
|                  |                                                  |                                                  | • Goal: 100% integration of systems into WfMS    |
| BPM reach        | • Same partners as present but processes not as tightly interlinked | • ¾ of all processes have external linkages  
|                  |                                                  | • Need for improvement of internal process networks | • Further integration of partners if internal optimization is at its limits |

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deal with largely dissimilar business process descriptions. Habitually, BPM project teams consist of internal actors only.

BPM Range: At ChemicalCo the IT infrastructure can be considered very homogeneous. Besides some task level office tools, SAP is the only system that is used. All processes are completely integrated into SAP and supported by various modules. Thus, the IT infrastructure offers full workflow support. One interviewee stated:  

We are using the full spectrum of SAP functionality. [...] Additional tools like Excel are only used for a few high level aggregations.

This focus on one central system that provides all functionality originated in a strategic shift. With the implementation of SAP, ChemicalCo also changed the structure of the processes to be ideally supported by the new system. One executive stated:

A whole lot of processes were improved during the SAP implementation. With this implementation, existing processes were adapted to the new infrastructure.

Employees are very satisfied with this current scenario because it offers both high transparency and a high level of process-orientation. Due to the one-time alignment of processes and IT, the additional usage of external and non-integrated tools is considered unnecessary and even restricted by company policies:

There is a corporate strategy: SAP first and then everything else. Third party software is always problematic. ARIS is not used on a corporate level. In my opinion there is no need for that either.

However, one major weakness is the dependence on the IT service provider who runs the SAP system. Especially the reaction time has been criticized within the interviews. While this is not likely to change in the future, the ChemicalCo plans on further enhancing their IT infrastructure by a centralized, SAP-based Management Information System that will improve the information provision within the individual workflows. However, due to organizational restructurings, this effort is currently postponed.

BPM Reach: The BPM reach of ChemicalCo can be considered rather low. Most processes end at the individual boundaries of either the functional departments or the geographical subunits. It was stated that only 20% of all processes cross the boundaries of the functional departments. For the boundaries of the corporate firm, this percentage is even lower. The quality manager stated:

Our processes end at the individual location boundaries. We have location-dependent and location-independent processes [...] However, there are no processes that cross the boundaries of a single location. In this case one process would end and another one would start.

Nevertheless, some processes reach across the boundaries of the company, primarily to improve integration with suppliers. For instance, ChemicalCo has implemented a vendor managed inventory with one of their suppliers. While these connections are considered beneficial for the company, especially cooperation with other firms from the chemical market is seen as problematic.

No, we don’t have anything there. [...] I think there is a fear that we could lose knowledge. We are market leader and are more likely to lose something than to gain something. I don’t think we would profit from a partnership with our competitors.

External connections are limited to a few processes that do not provide too much insight into the way ChemicalCo organizes their business. Process knowledge is kept within the business units and no externals are included in improvement efforts. Table 3 presents an overview of the findings for ChemicalCo.

6. Discussion

PhoneCo has the highest level of BPM reach among the two cases due to the fact that more than ¾ of their processes reach out to external partners. These partners need to be considered when implementing process changes. The possibility to streamline processes by integrating partners into the workflow is seen as a

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<th>Table 3 Development of BPM reach and range for ChemicalCo</th>
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<tr>
<td><strong>BPM range</strong></td>
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<td>BPM range</td>
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valuable option and a logical extension of the general idea of BPM. However, the internal processes need to have a certain optimization level in order to get the full benefit from these intra-organizational linkages i.e. internal optimizations have to be conducted before the reach is expanded to external partners. In contrast, this trend does not hold true for ChemicalCo. Here, only few processes cross boundaries which translate to a low BPM reach, too. This trend is also graphically depicted in Figure 2. Thus, we can derive the following proposition:

1. Organizations having a high degree of collaborative processes tend to have a higher BPM reach. When designing these processes organizations necessarily consult the corresponding partners.

Moreover, the case study suggests that ChemicalCo is very concerned about knowledge losses. In the chemical industry intellectual property is an important asset that should sustain competitive advantage. ChemicalCo expressed the fear that the inclusion of external partners in BPM could result in such knowledge losses. Thus, partners are only integrated in process innovation efforts with regards to logistic processes. Hence, we can derive an industry specific proposition for BPM reach:

2. In industries that have a high understanding of intellectual property (e.g. the chemical industry) organizations are reluctant to increase their BPM reach. Apparently, organizations fear the loss of intellectual property during BPM collaboration with external partners.

Regarding the BPM range dimension, it can be observed that both firms have implemented a certain level of IT process support. None of the companies focused on mere provision of task level tools. Furthermore, we can identify a cross-industry trend towards developing a more process-aware IT infrastructure. Even in the chemical industry where our case study showed a rather low reach of the processes, IT process support is a clear focus of the company. ChemicalCo has reached a fairly high level of BPM range due to their completely integrated WfMS and limited usage of external tools besides the workflow. Hence, we propose the following:

3. With regards to BPM range, organizations see the benefits of employing sophisticated IT solutions and develop themselves towards functional or at least application level IT support. Our case study data also suggests that organizational characteristics, especially ISO 900x certifications might play a role in determining BPM range. Apparently, IT helps to standardize processes which is an important mean to achieve the requirements resulting from ISO 900x. Certified organizations should execute processes as they are documented. A high BPM range can help in ensuring this feature. Thus, our last proposition reads as follows:

4. ISO 900x certified organizations (here: ChemicalCo) tend to have a higher degree of IT support in terms of BPM range.

7. Conclusion

These four propositions explain the observed developments with respect to BPM from different perspectives. Future research can test these propositions in further studies and use them as building blocks for future theories in the realm of BPM.

However, our findings are beset with certain limitations. On the one hand, the view of the interviewees on the firm is rather subjective and biased by their own believes and values. To account for this issue, we conducted at least five interviews at each company site. However, we still used only two cases to investigate the development paths of BPM. While this is in line with the exploratory character of our study, it reduces the generalizability of the results. Another limitation that has to be mentioned is the selection process of the sample firms.

![Figure 2](image_url)

**Figure 2** Applied Framework of BPM Reach and Range
While we performed a pre-study to inform our company selection, this study only encompassed a total of 15 firms. Thus, the selected companies were heterogeneous in some important aspects like e.g. size and location. While we believe that the results given are valid, there may certainly be unmentioned factors capable of influencing developments in the context of BPM. However, their identification was not in the scope of this study. The listed limitations suggest avenues for further research on the topic. Research could incorporate the analysis of other industries as well as the comparison of trends within them. The results could then be used to revise the BPM reach and range framework developed within this study.

Future research can heal these limitations by covering more industries and companies. Moreover, quantitative studies in this area could be valuable, too. Thus, scholars could evaluate the influence on business areas on reach and range. Future research could also work on the proposed scales and identify intermediary steps or sub-dimensions. Last, the proposed propositions can be tested.

8. Acknowledgements

This paper was written in the context of the research project KollaPro (promotional reference 01FL10004) funded by the German Federal Ministry of Education and Research. We would like to thank the reviewers and track chairs for their guidance and helpful remarks as well as our student assistants for their support in the data collection process.

9. References


