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8-2010

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ABSTRACT

Process management serves the design of IT and organizations, while multiple actors have stakes in setting the agenda and implementing process innovations. These stakeholders, from both inside and outside an organization's boundaries, constitute integral elements of a larger network of actors. The stimulation and utilization of such networks are critical success factors for process management and innovation initiatives. Without the inclusion of stakeholders, adaption of organizational processes to a dynamic environment can be expected to be less effective and less successful. Although the importance of process management networks and stakeholder inclusion is widely acknowledged in the literature, current research lacks a thorough empirically informed understanding of the phenomenon. Taking the public sector example, this paper sets out to study empirically the involvement of different stakeholders and to develop a theory for analysis of process management collaboration. We conduct a comprehensive quantitative survey of more than 350 organizations and apply principle component analysis to identify distinct sets of stakeholders. Empirical evidence is provided for collaborative patterns of internal actors, vertical collaboration partners, horizontal collaboration partners, political actors, commercial actors, and customers. These patterns can serve as generic theory constructs, building blocks, for future research on process management stakeholders and solving issue in research and practice regarding stakeholder involvement.

Keywords

Stakeholder Involvement, Collaboration, Business Process Management, Networks, Empirical Study.

INTRODUCTION

Business Process Management (BPM) can be understood a set of activities that enables an organization to dynamically adapt its business processes to a changing environment. We thus view BPM as a dynamic capability; as an organizational and strategic resource by which organizations achieve new resource configurations as markets emerge, collide, split, evolve, and die (Teece et al. 1997, Eisenhardt & Martin 2000). In order to gain BPM-relevant information from both inside and outside an organization's boundaries the involvement of multiple stakeholders is suggested (Tushman 1977, Rosenkopf & Nerkar 2001, Walsh & Deery 2006, Phelps 2007). Moreover, this information has to be subsequently translated into BPM action, again with the help of relevant stakeholders. For a more detailed argument on the influence of stakeholders a differentiation between the build and the work system is suggested. On the work system level, organizational activities are executed utilizing given organizational structures and information technology (Alter 2002, Bergman et al. 2002, Lyytinen & Newman 2008, Mumford, 2003). The build system level, where we locate BPM, is used to design and implement work system routines. For this, it commands a set of resources and carries out the change while addressing issues of uncertainty, ambiguity, and complexity (Lyytinen & Newman 2008, Lyytinen et al. 1996). With this background, we can understand the importance of stakeholder involvement as a key theme in the BPM body of knowledge for both practitioners and academics.

- First, research on Critical Success Factors (CSF) has studied the importance of networks for the success of BPM efforts. Here, it was recognized early that effectiveness and efficiency relies heavily on teams comprised out of people from both inside and outside the organization (Hammer & Champy 1993). An external orientation and learning have long been considered as BPM success factors (Davenport & Short 1990, Al-Mashari & Zairi 1999, McAdam & Donaghy 1999, Ahmad et al. 2007). Networks internalize important political dimensions in the study of BPM success (Grover et al. 1995, Willcocks & Smith 1995).

- Second, managing networks becomes increasingly important for the maturization of an organization in the context of its BPM activities (Fisher 2004, Rosemann & de Bruin 2005, Rosemann et al. 2006). Business processes are often too narrowly defined (Hall et al. 1993) and relevant stakeholders (Freeman 1984) thus fail to be included in BPM initiatives (Rosemann et al. 2006). According to research on BPM maturity, the effective involvement of organizational stakeholders (such as customers, suppliers, or distributors) in its BPM activities is an integral characteristic of organizations with high BPM maturity, of "intelligent operating networks" (Fisher 2004, p5). The stimulation, management, and exploitation of "BPM networks" (Rosemann et al. 2006) can be seen as a key challenge for the implementation of organizational BPM.

Despite the importance of stakeholder involvement and networks in BPM, yet little empirical research has elucidated the phenomenon. Developing a basic understanding of BPM stakeholders can be regarded as a first step towards exploring potential pathways of how to make systematic use of know-how, capacity, and legitimacy lying outside an organization's boundaries (Chesbrough 2003, von Hippel 2001). At current, BPM literature provides us with either very coarse terms, such as "internal" and "external" actors, or with very capillary units, such as "consultancy X" or "distributors Y". While the former approach lacks essential differentiation, the latter is often not operational for comparisons between domains and of individual studies. Literature thus does not yet provide a feasible set of variables (differentiated, but exploiting potential of analytical reduction in element complexity) for systematically studying collaboration and networks in BPM. Therefore, this paper addresses the following research question:

RQ: Which generic groups of stakeholders exist in business process management agenda setting and implementation projects?

The paper seeks to make the following contributions: Based on empirical quantitative research, it provides a theory for analysis (Gregor 2006) in BPM networks. It identifies and operationalizes groups of collaborators and provides differentiated variables (six groups) which are intended to inform further studies of BPM, for instance in CSF or BPM maturity. In order to achieve this aim, we visit the body of literature on BPM and study the discussion of BPM stakeholders and collaboration. We then set out methods and data of a comprehensive quantitative study of BPM stakeholders (357 local government cases in Germany). Here, we conceptually distinct between a) the phase of setting the agenda for BPM and b) the implementation of business processes. In order to identify groups of collaborators in BPM networks, we undertake a principle component analysis (PCA). As a result, we develop and describe a theory for analysis in BPM networks (Gregor 2006). The final sections are concerned with implications for theory and for practice, with limitations and the discussion of potentially fruitful avenues for future empirical BPM research.

2 RELATED WORK

BPM applies measures of both punctuated and incremental change in order to enable the adaptation of an organization's business processes. The roots of BPM lie in Business Process Reengineering (BPR) and Total Quality Management (TQM). While both BPR and TQM have a common focus on improving organizational processes, TQM is considered a rather incremental, evolutionary approach, aiming at continuous improvement (Zairi & Sinclair, 1995, Hung 2006). However, most of the business process research literature recognizes that both concepts must be viewed as complementary and integral parts of a process-oriented strategic management system (Harrison & Pratt 1992, Davenport 1993b, Zairi & Sinclair 1995, DeBruyn & Gelders 1997, Martinsons & Hempel 1998, Corbitt et al. 2000, Hung 2006). For example, on the subject of BPR, Kettinger et al. (1997, p56) argue that "[r]ather than a 'quick fix', BPR is increasingly recognized as a form of organizational change characterized by strategic transformation of interrelated organizational subsystems". Against this background, we view BPM as a management approach that applies concepts of both punctuated and incremental change. This perspective is supported, for instance, by Armistead & Machin (1997) and Rosemann & de Bruin (2005) who argue that BPM is an ongoing endeavor instead of a one-off radical change as associated with BPR. Here, BPM can be considered as a holistic approach to managing organizations (Armistead & Machin, 1998, Pritchard & Armistead 1999, Rosemann et al. 2006) with several possible perspectives: On the one hand BPM can take a purely organizational point of view, on the other hand the perspective can be more technical (Stohr & Zhao 2001, Sun et al. 2006, Rosemann et al. 2006). The latter is especially common in the course of information systems implementation (for an overview of the relationship between information systems and the innovation of business processes see Tarafdar & Gordon 2007).

BPM can be regarded as a dynamic capability; it enables an organization to dynamically adapt its business processes to a changing environment. The concept of dynamic capabilities was established in IS by Teece et al. (1997) and Eisenhardt & Martin (2000). Both papers provide a definition of dynamic capabilities as "the firm's processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match and even create market change. Dynamic capabilities thus are the organizational and strategic resources by which firms achieve new resource configurations

as markets emerge, collide, split, evolve, and die." Dynamic capabilities can be regarded as a particular type of resources in order to achieve competitive advantage (Barney 1991). Contrasting previous perceptions the concept of dynamic capabilities is not tautological, recursive, or nonoperational as criticized by several authors (Eisenhardt and Martin 2000) but is both empirically observable and identifiable, and, more important, enables empirical falsification. Dynamic capabilities are specific routines an organization uses to deal with other resources. Eisenhardt & Martin (2000) name several examples as the product development process or strategic decision making. We acknowledge that specific dynamic capabilities differ from organization to organization, but argue that they share some commonalities and are therefore comparable. Accordingly, we view BPM as a dynamic capability. It enables the organization to adapt its organizational as well as technical business processes to a changing environment of emerging, colliding, or evolving markets. BPM helps the organization to rearrange its assets and resources to fit the resulting new requirements. As stated above BPM is a management concept which is empirically observable and consists of many common features. However, the BPM practices in organization may differ in many aspects. In this study we set out to identify the commonalities with regards to the collaboration with BPM stakeholders.

The utilization of stakeholders in an organizations network constitutes an integral resource in order to gain BPM-relevant information from both inside and outside of an organization's boundaries (Tushman 1977, Rosenkopf & Nerkar 2001, Walsh & Deery 2006, Phelps 2007) and to subsequently translate this information into BPM action (adaption of business processes). Significant developments in management, economics, and organization led to the concept of organizational boundaries (Tushman 1977, Newell et al. 2001). Major drivers for this concept were, for example, the increasing importance of global value chains (Gereffi & Humphrey & Sturgeon 2005, Sia & Soh & Weill 2008) and production networks (Sturgeon 2002), interconnected firms (Lavie 2006), collaboration dynamics (Chen & Chen & Wang 2008, Katila & Mang 2003), outsourcing (Walsh & Deery 2006), and the increasing potential of information systems (Phelps 2007). Although research in BPM acknowledges that, first, boundaries are blurring in BPM as managing collaboration, networks, and governance is becoming increasingly important and, second, this can be regarded as a key challenge to BPM research and practice (Rosemann & de Bruin & Power 2006), only little research has yet systematically examined the implications of boundary-blurring business processes for BPM. In a systematic literature review a multitude of stakeholders in the sense of potential collaboration partners was derived from a qualitative analysis and out of the BPM literature (Niehaves & Plattfaut 2010). In general, the literature acknowledges that a broad involvement of 'people' inside and outside the organization increases the success and acceptance of BPM initiatives (Abdul-Hadi & Al-Sudairi & Saleh 2005, Hammer & Champy 1993). These stakeholders inside the organizational boundaries include the top management (Bandara & Rosemann 2005, Rosemann & de Bruin & Power 2006) as well as middle management and employees (Abdul-Hadi & Al-Sudairi & Saleh 2005, Corbitt & Wright & Christopolus 2000). Potential external partners can be customers (Hammer 2007), professional organizations (Balzarova et al. 2004), software consultants (Akhavan & Jafari & Ali-Ahmadi 2006), BPM consultants (Abdul-Hadi & Al-Sudairi & Saleh 2005, Akhavan & Jafari & Ali-Ahmadi 2006, Rosemann & de Bruin & Power 2006), as well as other companies (Wu 2002). In the context of the local governments in the public sector one can identify additional actors (as first and second tier governmental organizations as central or federal governments).

Collaboration and networks are key variables to multiple streams of research in BPM. First, research on Critical Success Factors (CSF) has studied the importance of networks for the success of BPM efforts. Here, it was recognized early that effectiveness and efficiency relies heavily on teams comprising stakeholders from both inside and outside the organization (Hammer & Champy 1993). An external orientation and learning have long been considered as BPM success factors (Davenport & Short 1990, Al-Mashari & Zairi 1999, McAdam & Donaghy 1999, Ahmad et al. 2007). Networks internalize important political dimensions in the study of BPM success (Grover et al. 1995, Willcocks & Smith 1995). Second, managing networks becomes increasingly important for the maturization of an organization in the context of its BPM activities (Fisher 2004, Rosemann & de Bruin 2005, Rosemann et al. 2006). Business processes are often too narrowly defined (Hall et al. 1993) and relevant stakeholders (Freeman 1984) thus fail to be included in BPM initiatives (Rosemann et al. 2006). According to research on BPM maturity, the effective involvement of organizational stakeholders (such as customers, suppliers, or distributors) in its BPM activities is an integral characteristic of organizations with high BPM maturity, of "intelligent operating networks" (Fisher 2004, p5). The stimulation, management, and exploitation of "BPM networks" (Rosemann et al. 2006) can be seen as a key challenge for the implementation of organizational BPM.

Current research on BPM networks yet shows significant shortcomings. Despite the importance of networks in BPM, yet little empirical research has elucidated the phenomenon. Developing a basic understanding of BPM networks can be regarded as a first step towards exploring potential pathways of how to make systematic use of know-how, capacity, and legitimacy that lies outside of an organization's boundaries. However, when it comes to conceptualizing specific network actors, BPM literature yet provides us with either very coarse terms, such as "internal" and "external" actors, or with very capillary units, such as "consultancy X", "distributors Y", or "stakeholder Z". While the former approach lacks essential differentiation, the latter is often not operational for comparisons between both domains and individual studies. Literature thus does not yet

provide a feasible set of variables (differentiated, but exploiting potential of analytical reduction in element complexity) for systematically studying collaboration and networks in BPM. As a result, we can identify a research shortcoming with regard to the identification and operationalization of collaborative patterns which could provide a set of differentiated and feasible variables (groups of stakeholders) intended to inform further studies of BPM, for instance in CSF, maturity, or other theory.

3 RESEARCH DESIGN

Data Collection. The data for our empirical study was collected in 2008 with the help of an online questionnaire. A random sample of 8,000 government officials, each responsible for BPM in a single local administration, were invited to participate in the study. Thus, out of about 12,250 local governments in Germany ~65% have been contacted. With a response rate of ~4.5% our sample represents 357 organizations located in 13 out of 13 German large-area federal states and, additionally, Berlin. A further non-response analysis did not reveal any biases in the study participants. The questions relevant for this study were "How important are the following actors for setting the BPM agenda in your local administration?" and "How important are the following actors for implementing BPM projects in your local administration?".[1] Thus, the questions focused on the importance of BPM stakeholders in BPM projects in both the agenda-setting and the implementation phases. We employed seven-point Likert scales for measuring the importance of each actor.

Data Analysis Technique. Principal Component Analysis (PCA) is used in order to reduce the number of variables (Jolliffe 2002). PCA is a mathematical procedure that transforms a number of possibly correlated variables into a smaller number of uncorrelated variables (the principal components or factors). PCA gives loadings for each combination of variable and factor (factor loadings). Higher loadings mark a higher correlation between variable and factor. Thus, the factors can be interpreted as underlying latent variables. Here, we try to interpret the principal components as distinct groups of actors involved in BPM projects. As the actors in each group share a strong correlation they can be used as theory constructs for quantitatively analyzing BPM methods, tools, and technologies without losing explanatory power. The number of principal components/factors is to be determined upfront. Here, standard procedure follows the Kaiser criterion (Kaiser 1960), which suggests the selection of all factors with eigenvalues greater than 1. While such approach is based on rather purely statistical arguments, it is possible and recommendable to change the number of factors in order to open up for a better fit with the given research question and setting (Jolliffe 2002). PCA is a procedure widely accepted in chemometrics and ecology and various applications in the IS domain prove the feasibility of this research method (see, for instance, Karimi & Gupta & Somers 1996 or Chang & King 2005). SPSS 17.0 was used for the quantitative data analysis.

4 RESULTS

Initially applying the Kaiser Criterion (Kaiser 1960) three factors were suggested. For the phase of Agenda-setting, the analysis gives high loadings for the Mayor, the Department Head, and the Staff Members on component 1, for Council Members, Political Parties, first and second tier organizations, citizens, and local companies on component 2, and consultancies, local government associations as well as other local governments on component 3 (Table 1). A PCA with three principal components for BPM Implementation shows the same three groups of actors though, of course, the factor loadings differ (Table 2). The three principal components can be interpreted as internal actors (factor 1), political actors and customers (factor 2), and disseminators (factor 3). The mayor, department head and staff members form the group of internal actors. Political actors and customers consist of council members, political parties, first and second tier organizations as well as citizens and local companies. However, the PCA also shows high loadings for council members on factor 3 (internal actors). It seems as if council members show partially the same traits as internal actors.

[1] Due to space limitations we cannot provide the complete questionnaire. Please contact one of the authors if you are interested in it.

Rotated Component Matrix (Agenda Setting)			
	Component		
	1	2	3
Mayor	.789	.182	-.046
Department Head	.838	-.010	.126
Staff Members	.786	-.057	.198
Council Members	.469	.631	-.013
Political Parties	.121	.789	.059
1st Tier Organizations	-.076	.780	.245
2nd Tier Organizations	-.037	.798	.246
Citizens	.071	.618	.247
Local Companies	.011	.640	.319
Management Consultancies	.066	.114	.733
Software Consultancies	.074	.132	.810
Local Government Associations	.193	.414	.629
Other Local Governments	.038	.339	.587
Extraction Method: Principal Component Analysis. Extraction based on Eigenvalues greater 1 (Kaiser criterion). Rotation Method: Varimax with Kaiser Normalization (converged in 5 iterations).			

Table 1. Rotated Component Matrix: Three Components for BPM Agenda-Setting

Rotated Component Matrix (Implementation)			
	Component		
	1	2	3
Mayor	.723	.176	-.105
Department Head	.877	-.029	.093
Staff Members	.774	-.137	.172
Council Members	.426	.684	.006
Political Parties	.061	.812	.067
1st Tier Organizations	-.103	.760	.286
2nd Tier Organizations	-.047	.772	.301
Citizens	-.041	.657	.409
Local Companies	-.036	.669	.423
Management Consultancies	.029	.116	.735
Software Consultancies	.069	.129	.787
Local Government Associations	.140	.395	.659
Other Local Governments	-.009	.335	.600
Extraction Method: Principal Component Analysis. Extraction based on Eigenvalues greater 1 (Kaiser criterion). Rotation Method: Varimax with Kaiser Normalization (converged in 4 iterations).			

Table 2. Rotated Component Matrix: Three Components for BPM Implementation

However, especially as the second factor is interpreted as "political actors AND customers" it appears as if more factors give better results. Therefore, we develop the number of factors beyond the Kaiser criterion and perform multiple PCA with

higher numbers of factors (such approach is in line with Jolliffe 2002): The critical aspect of a factor interpreted as "political actors AND customers" is resolved when analyzing the data with a fixed number of four factors (see Table 3). The resulting principal components can be named internal actors, political actors, customers, and disseminators. Still, the last column (six principal components) is better interpretable. The mayor, department head, and the staff members form the group of internal actors (1). Council members and political parties constitute political collaboration partners (2), first and second tier organizations are vertical collaboration partners (3) for the local government and its BPM reforms while local government associations and other local governments are horizontal collaboration partners (6). Additionally, the customers (citizens and local companies) are grouped (4) as well as the consultancies (5).

However, considering BPM implementation other principal components occur (see Table 4). As mentioned above council members partially show the same traits as internal actors when it comes to BPM implementation in local governments. When performing a PCA with six factors the council members and the mayor are grouped in one factor possibly called political decision makers (1) while department heads and staff members form the core internal actors (2). The third group of political actors then consists of political parties and first and second tier organizations (3). The other three groups (customers, consultancies, and horizontal collaboration) remain unchanged.

Principal Compontents & Item Loadings (BPM Agenda Setting)								
BPM Actors	Principal Components: 3		Principal Components: 4		Principal Components: 5		Principal Components: 6	
Mayor	.789	1	.783	1	.780	1	.643	1
Department Head	.838	1	.839	1	.841	1	.882	1
Staff Members	.786	1	.791	1	.794	1	.849	1
Council Members	.631	2	.634	2	.634	2	.808	2
Political Parties	.789	2	.799	2	.813	2	.722	2
1st Tier Organizations	.780	2	.801	2	.791	2	.894	3
2nd Tier Organizations	.798	2	.780	2	.757	2	.869	3
Citizens	.618	2	.880	3	.808	3	.880	4
Local Companies	.640	2	.834	3	.841	3	.850	4
Management Consultancies	.733	3	.744	4	.884	4	.885	5
Software Consultancies	.810	3	.827	4	.745	4	.742	5
Local Government Associations	.629	3	.638	4	.681	5	.693	6
Other Local Governments	.587	3	.565	4	.807	5	.849	6
Extraction Method: Principal Component Analysis.								
Fixed number of factors.								
Rotation Method: Varimax with Kaiser Normalization.								

Table 3: Principal Components and Factor Loadings for BPM Agenda-Setting

Principal Compontents & Item Loadings (BPM Implementation)								
BPM Actors	**Principal Components: 3**		**Principal Components: 4**		**Principal Components: 5**		**Principal Components: 6**	
Mayor	.723	1	.631	1	.671	1	.776	1
Department Head	.877	1	.874	2	.866	2	.864	2
Staff Members	.774	1	.876	2	.882	2	.911	2
Council Members	.684	2	.738	1	.745	1	.739	1
Political Parties	.812	2	.661	1	.606	1	.545	3
1st Tier Organizations	.760	2	.719	3	.863	3	.887	3
2nd Tier Organizations	.772	2	.775	3	.851	3	.843	3
Citizens	.657	2	.806	3	.876	4	.856	4
Local Companies	.669	2	.796	3	.823	4	.829	4
Management Consultancies	.735	3	.840	4	.842	5	.863	5
Software Consultancies	.787	3	.818	4	.825	5	.810	5
Local Government Associations	.659	3	.564	3	.524	5	.669	6
Other Local Governments	.600	3	.652	3	.511	4	.872	6
Extraction Method: Principal Component Analysis. Fixed number of factors. Rotation Method: Varimax with Kaiser Normalization.								

Table 4: Principal Components and Factor Loadings for BPM Implementation

In order to explain the PCA-based actor grouping, we analyzed the component matrices of the PCA with six components. Often items with factor loadings/item loadings greater than 0.5 count as relevant. As table 5 shows only the mayor has a high factor loading for another principal component. Apparently, the mayor has some traits of political actors in the context of agenda-setting as well. Moreover, political parties have a high loading for the third factor (vertical collaboration), too.

Rotated Component Matrix (Agenda Setting)						
	Component					
	1	2	3	4	5	6
Mayor	.643	.529	-.058	-.009	.024	.006
Department Head	.882	.078	.042	.027	.072	.005
Staff Members	.849	-.009	-.013	.060	.058	.123
Council Members	.225	.808	.163	.156	.010	.196
Political Parties	-.074	.722	.432	.217	.170	.068
1st Tier Organizations	-.020	.186	.894	.173	.173	.127
2nd Tier Organizations	.022	.172	.869	.219	.077	.242
Citizens	.055	.173	.129	.880	.068	.179
Local Companies	.036	.101	.260	.850	.161	.144
Management Consultancies	.064	.079	.100	.145	.885	.051
Software Consultancies	.085	.030	.144	.060	.742	.381
Local Government Associations	.165	.187	.274	.144	.298	.693
Other Local Governments	.013	.084	.128	.200	.122	.849
Extraction Method: Principal Component Analysis. Fixed number of factors: 6. Rotation Method: Varimax with Kaiser Normalization (converged in 6 iterations).						

Table 5: Rotated Component Matrix (BPM Agenda-Setting)

Rotated Component Matrix (Implementation)						
	Component					
	1	2	3	4	5	6
Mayor	.776	.343	-.098	-.130	.038	.061
Department Head	.283	.864	-.024	-.011	.035	.016
Staff Members	.022	.911	-.022	.023	.025	.037
Council Members	.739	.101	.295	.294	.063	.076
Political Parties	.531	-.169	.545	.330	.127	.040
1st Tier Organizations	.061	-.037	.887	.211	.175	.150
2nd Tier Organizations	.083	.013	.843	.256	.110	.259
Citizens	.095	-.005	.237	.856	.144	.252
Local Companies	.079	.019	.310	.829	.204	.177
Management Consultancies	.091	-.021	.065	.183	.863	.087
Software Consultancies	.010	.084	.198	.090	.810	.224
Local Government Associations	.165	.093	.296	.161	.370	.669
Other Local Governments	.019	.002	.156	.250	.119	.872

Extraction Method: Principal Component Analysis.
Fixed number of factors: 6.
Rotation Method: Varimax with Kaiser Normalization (converged in 6 iterations).

Table 6: Rotated Component Matrix (BPM Implementation)

A closer analysis of the results of the PCA for collaboration partners in public sector BPM implementation shows that the differences between the agenda-setting and implementation phase are not fundamental (see Tables 5 and 6). The mayor loads rather high (0.343) on the factor of core internal actors while political parties load almost as high in the political decision makers as in political actors or vertical collaboration partners. Consequently, in the two phases the mayor tends to switch between internal and political actors. This is explainable as he is elected and therefore not part of the "core" administration. In the agenda setting phase he serves as an internal agenda setter – comparable to the top management. When it comes to the implementation of BPM reforms he acts as a political actor whom the "core team" only confers. Comparably, political parties tend to switch between political actors and vertical collaboration partners. As they load very high on both factors in both cases a differentiation is difficult.

5 DISCUSSION

Implications for theory and research. Following Gregor (2006), a theory for analysis (or taxonomic theory) describes dimensions of characteristics common to various discrete observations. Multiple streams of research, such as on CSF or BPM maturity concur that networks are key to successful BPM. In this study, we were able to identify six groups in which the corresponding actors share a strong inter-component-correlation. These six groups, together with the relations to the original BPM network stakeholders, form the basic constructs of our theory for analysis (see Figure 1). It can be regarded as an essential first step for further theory development in BPM networks, for instance, including theories for explanation, prediction, or design and action which can utilize these groups of actors as variables for studying causal relationships among phenomena. Our study was able to provide evidence that multiple actors and collaborative patterns are relevant in BPM networks in the case of the public sector. On the one hand, we identify internal actors (the mayor, the department heads, and the staff members). On the other hand, there are several differentiated groups of external stakeholders: vertical collaboration partners are 1st and 2nd tier government organizations while horizontal collaboration partners consist of other local governments and local governments associations. Citizens and local companies form the group of customers. The group of political actors contains council members and political parties. Another group is interpreted as commercial collaboration partners and consists of those actors having a pecuniary interest in public sector BPM collaboration: software and management consultancies (see again Figure 1).

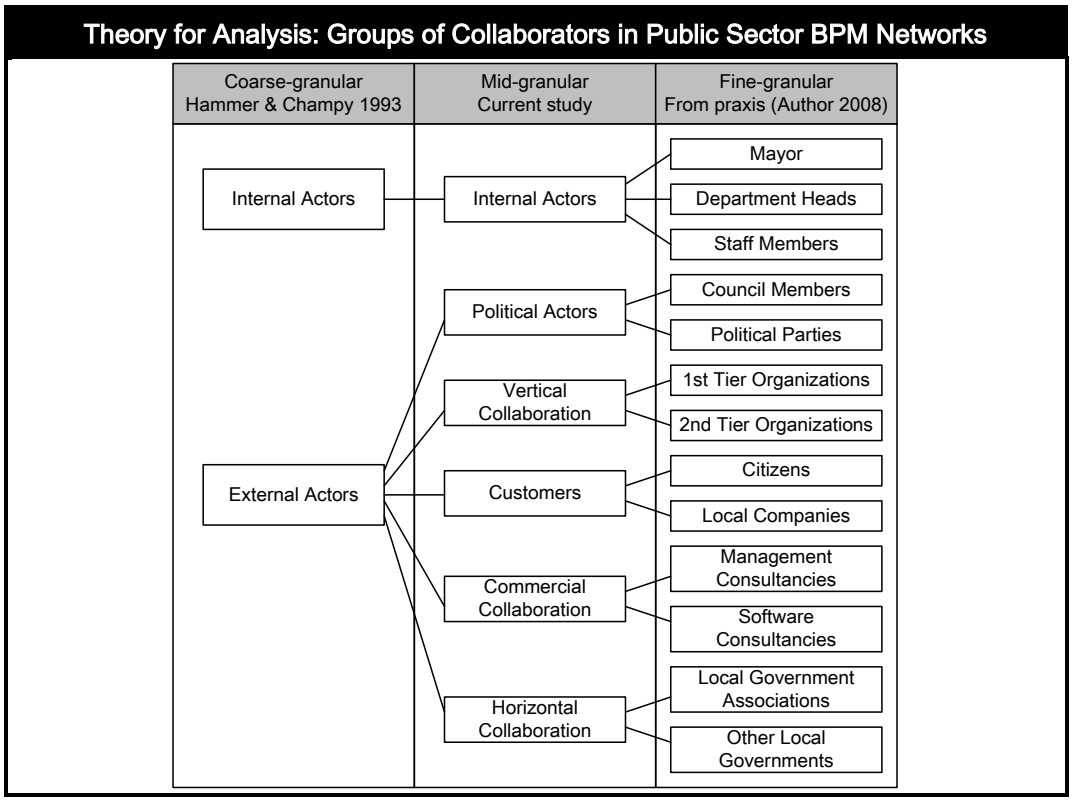

Figure 1: Theory for Analysis: Groups of Collaborators in Public Sector BPM Networks

For subsequent research, referring to the six groups of BPM actors could potentially yield significant advantages, for example, with regard to data collection. Although a higher aggregation of all actors to only two groups (internal and external actors) is possible and was used in the BPM literature, we argue that the empirically reasoned set of six groups is valid and has the potential to explain more variations than just the two groups. In addition, the use of a mid-granular set of variables has additional positive effects. Small changes on the single-actor (fine-granular) level are compensated by the effect of aggregation. We expect our theory to be – to a certain extent – robust against the emergence of new actors in BPM networks. New actors can potentially be associated with existing groups. Moreover, the utilization of our six theory constructs yields the advantages of study comparability. The theory provides a language and common understanding of collaborative patterns in BPM networks. While some aspects might be specific to the public sector domain, subsequent research might well compare commercial collaboration or customer collaboration between a public and a private sector setting (for a comparison of advantages and disadvantages of these with regard to variable granularity distinct approaches see Table 7).

Comparison of the three approaches		
Coarse-Granular	**Mid-Granular**	**Fine-Granular**
+ easy data collection	+ easy data collection	+ need for collecting comprehensive data
- lack of differentiation, little explanatory power	+ differentiation and strong explanatory power	+ differentiation and strong explanatory power
+ robust against variation (new actors)	+ robust against variation (new actors)	- high level of variation (new actors)
+ robust against variation (existing actors)	+ robust against variation (existing actors)	- high level of variation (existing actors)
o results are comparable, but rather unspecific	o medium comparability of results between settings and domains	- results are difficult to compare between settings and domains

Table 7: Comparison of the three approaches

Our theory of analysis bears implications for multiple streams of BPM research. First, CSF research addresses the question of which groups contribute to the success and failure of BPM initiatives. Utilizing the six groups, CSF research might study, if the inclusion or exclusion of a certain group – instead of single actors – contributes to successful BPM. Also, it appears to be fruitful to study, if common barriers or obstacles of collaboration exist in the six groups identified. Second, BPM maturity research has yet emphasized that certain individual actors only occur on single maturity stages (Rosemann et al. 2006). However, it might be fruitful to study how the degree of involvement and the reliance on external expertise is distinct between different maturity stages, for example commercial collaboration in early and customer collaboration in later BPM maturity stages.

Implications for practice. The presented theory improves the understanding of BPM networks and collaboration while referring to the example of the public sector. BPM "gurus" in local governments can make use of the results and consult different actors in their local BPM network. Thanks to the organization of the actors in groups, local government process managers can employ focused meetings with actors to enhance the results of their BPM reforms. Our theoretical foundation stresses the importance of an inclusion of external partners. BPM as a dynamic capability can only be successful, if an organization reacts to the changing environment appropriately.

Limitations. Our study is beset with certain limitations. First, the principal component analysis gives results that have to be interpreted. Therefore, other researchers might name the respective groups differently. Second, we applied a focal actor approach to the analysis of BPM networks as only one relevant public official answered the survey for his or her local government. Although we believe that the analysis of 357 local governments may compensate for the potential subjectivity, we still have only viewed the actors in BPM from the perspectives of local governments. Future studies in different contextual settings, both with regard to the sector and national background, will need to be conducted in order to further improve our current understanding of collaboration and networks in BPM. Third, our research may be limited by the fact that government officials understand the concept of BPM differently. Although our questionnaire gave some guidance, this fact may still limit our research.

6 CONCLUSION

Summary. This paper examines the grouping and importance of stakeholders in the context of public sector BPM. We suggest that BPM can be regarded as a dynamic capability that enables organizations to adapt their business processes to changing environments or markets. Moreover, the importance of the inclusion of external collaboration partners is stressed by CSF and maturity literature. A literature review (Niehaves & Plattfaut 2010) shows that a multitude of actors exist in public

sector BPM networks: The mayor, the department heads, staff members, council members, political parties, central and federal government organizations, citizens, local companies, management and software consultancies, local government associations, as well as other local governments. Our quantitative analysis involves the data of 357 local government organizations in Germany and assesses the importance of all 13 actors for both BPM agenda-setting and BPM implementation. The results of a six factor principal component analysis (PCA) form the basis of our presented theory for analysis. Although small differences between BPM agenda-setting and BPM implementation occurred, the 13 actors can be grouped into six mutually exclusive groups: Internal actors (mayors, department heads, and staff members), political actors (council members and political parties), vertical collaboration partners (federal and central government organizations), customers (citizens and local companies), commercial collaboration partners (management and software consultancies), and horizontal collaboration partners (local government associations and other local governments). We argue that the six groups subsume the 13 actors more effectively than simply the two groups often employed in theory and praxis (internal and external actors).

Future Research. The theory can be used in future research as it eases the data collection to a great extent without limiting the data analysis too much. Exemplarily, future research could analyze the importance of the actors and the different groups. This could help to fully understand collaboration in the context of BPM maturity or CSF for BPM. Moreover, it is still an open question what role the different actors play in BPM projects, especially considering the different maturity stages or market conditions. This could be addressed with the help of a qualitative study. Another area of future research lies in the private sector. The applicability of our theory of analysis for BPM in and between companies has yet to be proven.

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