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Global Knowledge-Intensive Business Process: Extending the Boundaries of Business Process Management

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ABSTRACT

This paper proposes to extend the existing boundaries of Business Process Management (BPM) to include an emerging category of processes, here termed Global Knowledge-Intensive Business Processes (GKIBP). These processes differ from other global processes, such as supply chains and collaborative cross-organizational business processes (BPs), as their main outcome is a commercial knowledge artifact, co-created through coordinated activities of knowledge agents, that may or may not come from an organizational setting. Starting from a well-known model by Harmon (2007) used to describe the main components of BPM in an organizational setting, our research proposes a new framework more suitable for the targeted category of GKIBPs. Design of the proposed framework is founded in a case study of a real-life example of GKIBP based on *crowdsourcing*, also briefly described in this paper. The proposed framework is used for analysis of twenty-five papers published in the leading Information Systems journals. This resulting synthesis is then used to point to several research gaps and to propose several research opportunities.

Keywords (Required)

Global collaboration, cross-border collaboration, knowledge creation, knowledge management, knowledge transfer.

INTRODUCTION

In the recent years, the area of cross-border digital collaboration is receiving an unprecedented attention (Romano Jr., Pick and Roztocki 2010). This interesting research phenomenon has been studied for many years by several, often independent research communities interested in digital collaboration, supply chains, and e-commerce as well as collaborative business processes, all bringing their own unique perspectives. In the IS field, a systematic literature review identified 80 papers published on this topic from 2000 until 2007, just in six leading IS journals (Madlberger and Roztocki 2009a, b).

While acknowledging the existence of many forms of digital collaboration that cross organizational and geographical boundaries, this paper focuses on a specific type of collaboration not well explored by the current research, as demonstrated later in the paper. Global Knowledge-Intensive Business Processes (GKIBP), the focus of our investigation, could be best described by a process of coordinated knowledge co-creation, resulting in a knowledge product (artifact) of a commercial/business value. The inputs to this process may include knowledge capital, human resources, physical assets, financial means, and so on. The outputs of this process are knowledge products, such as patents, new products, or customized marketing strategies for large corporations. A graphical conceptualization of our targeted GKIBP is depicted in Figure 1.

Furthermore, we assume that the resulting knowledge product is being created by knowledge agents, residing at different geographical locations (e.g. in two or more countries) – hence the term Global. We argue that the global aspect brings very interesting issues to the process, such as cultural perspective, country-specific rules and regulations and so on. Even the time factor is also very likely to impact the work being conducted in a positive or negative way.

Moreover, the contributing agents could represent organizations, could come from organizational settings but could also be individuals not bound by any organizational boundaries or formal organizational roles. This again brings further interesting challenges created by organizational settings not only for the knowledge agents bound by organizational roles, but also for the independent ones, in terms of normative regulations, resource provision, or even motivation to participate.

As the individual and collaborative activities need to be coordinated towards the same business objective (co-creation of a knowledge artifact) but also carefully managed to ensure their efficiency and effectiveness, we argue that this type of collaboration could be, and in fact, should be studied from a process perspective. Furthermore, as the main objective of this collaborative effort is to create a knowledge artifact (output) of a commercial (business) value and most of process participants' activities involve knowledge work, we argue that these processes could be classified as GKIBP.

Interesting examples of GKIBP could be found among the emerging models of “crowdsourcing” designed to create a commercial knowledge product, for example a group of experts co-creating a commercial textbook (Walter and Back 2010), as described later in this paper.

Compared to more traditional supply chains that are also global business processes (BPs) and could be also studied from the knowledge perspective, GKIBPs do not involve physical movements of goods, but a co-creation of knowledge. Also, when compared to cross-organizational BPs, typically studied by the business processes management (BPM) Community under the banner of Collaborative BPs, GKIBPs are not necessarily cross-organizational. As already stated, process participants could be individual knowledge agents not bound by any organizational norms or contexts and therefore having very different motivation to participate than being obliged to do it through their organizational role.

In spite of the abundance of publications on digital cross-border collaboration, GKIBP, the synergistic process of knowledge co-creation, is not well understood in the current literature, as demonstrated later in the paper. In addition, despite the increased focus on knowledge-intensive processes within BPM community, both in industry (Gartner 2008) and academia (Marjanovic 2010; Sarnikar and Deokar 2010), this type of knowledge-intensive processes that are not organizationally or cross-organizationally bound are yet to be studied. Similarly, the emerging research on crowdsourcing (Brabham 2008) tends to focus on business models and communities and is not necessarily concerned with the process of knowledge co-creation. It is also important to point out that not all crowdsourcing efforts (such as co-creation of “Wikipedia”) could be classified as GKIBP that we choose to adopt as the main focus of this research. Most importantly, while researchers in this growing community focus on many interesting aspects of crowdsourcing, they are yet to investigate it from the process or, more precisely BPM perspective, as we propose to do in this research.

This lack of understanding of these emerging types of BPs across different communities (digital collaboration, supply chain, collaborative BPs) provides the main motivation for our study. Even more, this mode of work is expected to be even more popular in the future, due to many factors, including globalization, new technologies, emerging economies, as previously argued by Friedman (2005) and Tapscott and Williams (2010). This in turn is expected to create new challenges for BPM, as the associated processes need to be taken outside the organizational boundaries and traditional “management” approaches. Most importantly, they need to be managed in yet to be understood ways.

Figure 1 offers a high level conceptual model of our target GKIBPs.

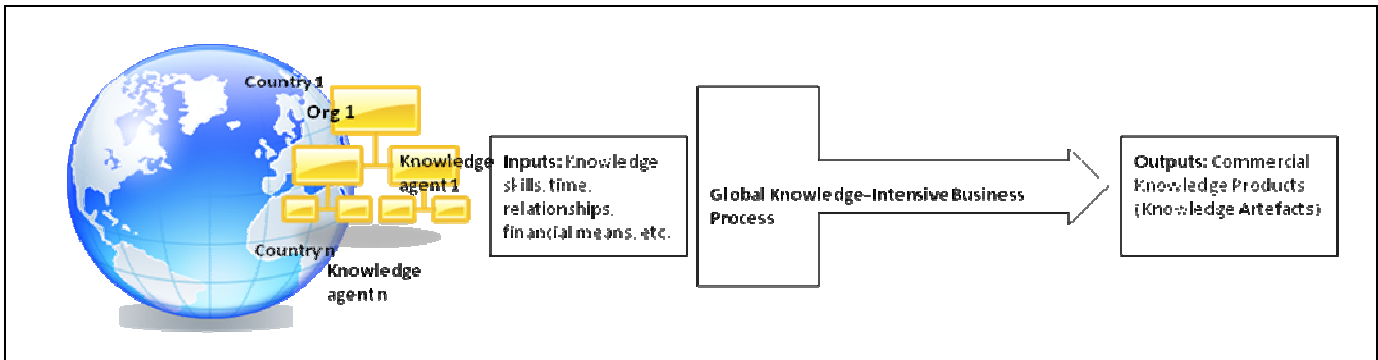


Figure 1. Global Knowledge-Intensive Business Process

The main objective of this research is to investigate this emerging type of global knowledge-intensive business processes by taking a holistic approach. More precisely, we adopt the well-known model of BPM, widely used by the researchers and practitioners in the context of organizational BPs and apply it to GKIBP, as defined above, in order to evaluate its applicability as well as identify new issues pertinent to GKIBPs, not captured by the original model. The resulting modified model (framework) is then used to evaluate the existing literature related to the BP perspective of digital collaboration and identify new research gaps.

The remainder of our paper is organized as follows. We begin with a motivating (real-life) example of GKIBP and describe its main components, identified on the basis of our conceptual model, previously depicted by Figure 1. The next section discusses the theoretical background of our study. The following section then introduces three research questions and describes our research methodology. The motivating example is used to clarify the differences between GKIBP and BP. We then proceed to describe the design of our proposed framework and discuss its main component. The proposed framework is then used for an in-depth review of the related literature, as published by the leading Information Systems (IS) journals. The

main objective of this literature review is to discover potential research gaps related to the current research on GKIBP, taking the process perspective. After discussing our findings, informed by the outcomes of the literature review, we identify some implications for the future research and practice, informed by the described application of our framework. We also point out some limitations which may present interesting opportunities for future research. We conclude the paper with a brief summary of the main contributions.

MOTIVATION

In the current global knowledge economy, a large portion of value is created by GKIBPs. In addition to the structured cross-border digital collaboration, often initiated by large corporations, an increasing number of commercial knowledge products are co-created by a large number of individuals, through the so-called crowdsourcing.

One of the many examples of a successful crowdsourcing is the creation of text books. For example, using their own model of crowdsourcing Osterwalder and Pigneur (2010) published a text book about the creation of business models. To participate in this project the potential co-authors had to pay an initial admission fee of USD 24.00 (Walter and Back 2010). Gradually, as the number of interested co-authors increased, the admission fee was raised to USD 250. These fees provided financial means needed for various expenses related to book publishing. During this project, 470 co-authors from 45 countries worked on various tasks necessary for writing and publishing a text book. The main tasks for the co-authors were to search for weaknesses of, comment and, if possible improve a posted draft version of the text/design/concept/model/tool being developed, as well as provide known examples from their own practice. Moreover, many of the co-authors participated in a physical workshop where they have opportunities to exchange ideas. A high-level model of this particular GKIBP is depicted by Figure 2.

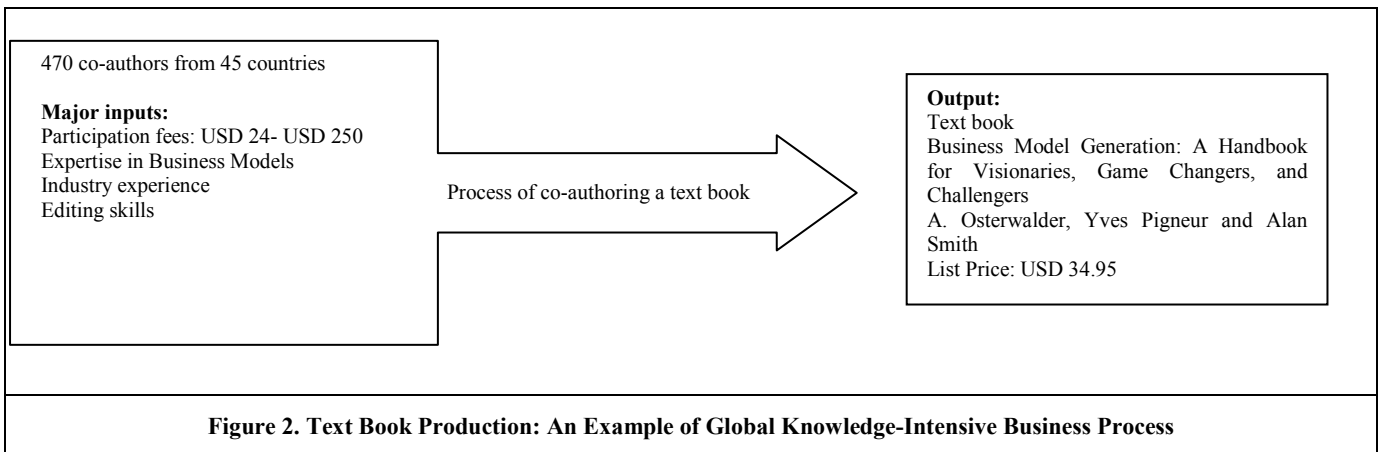


Figure 2. Text Book Production: An Example of Global Knowledge-Intensive Business Process

Apart from this illustrative example, there are many other well-documented case studies of various crowdsourcing efforts also focused on knowledge-co-creation and resulting in commercial knowledge artifacts and would therefore fit the description of our chosen GKIBP. However, in spite of a growing body of research, their process perspective is still not well understood, creating the main motivation for this work.

THEORETICAL BACKGROUND

This section introduces the basic terms and offers a brief overview of the well-known theoretical framework by Harmon (2007) used to capture and analyze different aspects of BPM in the organizational context. In the absence of a similar framework for GKIBP, we have adopted Harmon’s framework as our starting point.

In an organizational context, a BP is defined as a set of *coordinated* activities/tasks performed by process participants towards a shared business objective (Lindsay, Downs and Lunn 2003). BPs are guided by various policies and procedures and supported by BPM systems and other technologies that could range from simple BP automation systems, to complex systems designed to provide user-driven support for ad-hoc communication/collaboration and coordination.

Very recent industry-wide adoption of the holistic BPM model has resulted in an increased recognition of the knowledge (Seethamraju and Marjanovic 2009) and experience people develop, use, and share while participating in all phases of the BP

lifecycle. In response, BPM has started to evolve beyond operational BPs to include knowledge-intensive processes. In general, a BP is *knowledge-intensive* if its value can be directly attributed to people's knowledge and experience required for BP-related, non-routine, situational decision making. Consequently, their models may not be pre-defined and fully structured as it is the case with transactional, operational BPs.

As already pointed out, our research focuses on a specific type of BP, here termed GKIBP that also fits a stated definition, as the activities and tasks of process participants (i.e. knowledge agents) need to be coordinated towards the same goal – co-creation of a knowledge artifact. Compared to the organizational or cross-organizational BPs, the GKIBPs chosen for this research are even more complex, because the participating knowledge agents could be independent from any formal organizational setting; therefore they are not bound by formal organizational roles, but nevertheless they will assume process-related roles. However in spite of their differences GKIBPs, just like their organizational counterparts, need to be managed and activities/tasks of process participants need to be coordinated. Consequently, the well-established field of BPM becomes the logical starting point of our research. Indeed, BPM offers many different theories and frameworks related to BPs in general but also, more recently knowledge-intensive BPs which could be adapted to guide our examination of a GKIBP.

Furthermore, our stated intention to take a holistic approach has motivated us to adopt the well known BP Trends Business Process Pyramid by Harmon (2007) as a starting point, or a foundation for our initial framework. This widely used BPM framework is an example of a holistic model as it considers different components of organizational BPs at three levels: Enterprise, Business Process, and Implementation levels.

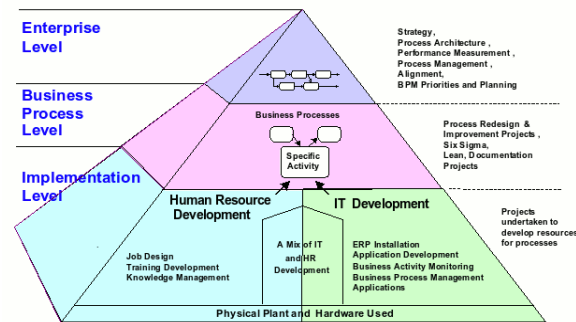


Figure 3: Harmon's BP Trends Pyramid (2007)

As depicted by Figure 3, the enterprise level of Harmon's model includes the enterprise-level process architecture, issues related to process-related performance measurement and the overall BPM governance. The Business Process level includes methodologies for process design and ongoing improvement. The implementation level incorporates two components: people and technology, termed the Human-Resource Development and IT Development components. The people component includes BPM related knowledge management, training and issues related to BPM-related job design. Finally, its technology component includes issues and practices relevant for the IT development, including the BPM systems.

In addition to linking organizational strategy and its implementation level, via business processes, the Enterprise, Business Process, and Implementation levels depict three hierarchical levels of concerns within BPM. This separation is very important, as “projects or activities at different levels require different participants, different methodologies and different types of support” [Harmon 2007], pp. xxvi].

While the previous two decades have seen BPM predominantly practiced at the Business Process Level and within the technology component of the Implementation level, the current focus on knowledge-intensive processes, places the main emphasis on the people component. But this also challenges our understanding of the other components, that now need to be reconsidered to accommodate this “new” category of processes (Marjanovic and Freeze 2011)

RESEACH QUESTIONS AND METHODOLOGY

Given the main research focus and objectives of this paper, as described above, the research described in this paper will focus on the following research questions:

1. How do GKIBPs differ from organizational Knowledge-intensive Business Processes (KIBPs)?

2. Do the same BPM frameworks used to describe and manage organizational BPs in a holistic way, apply to GKIBPs, or are new frameworks required?
3. To what extent the existing IS literature, as published by the leading IS journals consider GKIBPs? Which aspects are considered and where are the research gaps?

We argue that all these questions are important in order to set the foundations for the research in this area, as well as confirm the extent to which the existing IS literature, as published by the leading IS journal over the last seven years have addressed the identified research area.

Our research methodology consisted of the following major phases. In order to address the first research question, we adopted the previously described Harmon's framework, as the theoretical lenses and undertook an in-depth exploratory case study of the motivating example of GKIBP. The analysis of this global process was informed and guided by the readily available information currently posted on the project community portal (<http://www.businessmodelhub.com>) as well as the main outcome of this process – the co-created book by Osterwalder and Pigneur (2010). The outcomes of this research phase have led to the construction and validation a new theoretical framework for GKIBPs. This in turn helped us to address the second research question. Finally, in order to address the third research question, we used the new framework for an in-depth review of the existing IS literature, followed by the analysis and synthesis of the obtained results. Detailed discussion of each step follows below.

EXPLORING GLOBAL KNOWLEDGE INTENSIVE BUSINESS PROCESSES (RESEARCH QUESTION 1)

As already stated, the starting point for this research was Harmon's framework that was adopted with an objective to examine the chosen example of GKIBP at three different levels: Enterprise, Business Process and Implementation levels. Our in-depth analysis of the chosen global process led to the following findings.

First of all, the *Enterprise Level* no longer applies, given the fact that these processes do not "live" within the context of a single enterprise. Nevertheless, they are still guided by a strategy that focuses on *value co-creation* by all process participants. In this case it is co-creation of a content, led by project initiators and involving a large community of self-selected process participants. Anything beyond the featured GKIBP (i.e. the process of co-creation of content) has been outsourced to service providers. Examples include Production and Logistic processes that are not managed by this community and thus fall out of the scope of this GKIBP.

The *Business Process Level* still exists as it describes the actual work that needs to get done. However, its nature is very different. For example, our analysis of the chosen GKIBP confirmed that this was indeed a collaborative knowledge-intensive processes guided by an evolving (i.e. emerging) high-level model rather than predefined model. It is interesting to observe that the process participants also co-created the process model, in addition to co-creating the outcome of this process (i.e. the book). The high-level process model was guided by the principles design thinking and gradually evolved through several phases: mobilize, understand, design, implement and manage (Osterwalder and Pigneur, 2010, pg. 249). Each phase was also supported by a set of tools and techniques – some of them borrowed from other fields (such as knowledge management) or again, co-created by the process participants (such as the so-called business canvas). Furthermore, in addition to the co-created content, this high-level process itself also became one of the outcomes of the GKIBP. As such it was subsequently adopted by the users of this book ("visionaries, game changers and challengers") to guide the design of their own business models in different contexts.

Harmon's model also includes the *Implementation Level* that consists of two components: People and Technology. Both are used to implement BPs, as specified at the process level. Again, we could observe some major differences. Compared to the organizationally bound BPs, where process participants are bound by their organizational roles and the normative context (obligations, responsibilities) in which they work, the GKIBP participants are mainly self-selected and some invited on the basis of their expertise. Furthermore, while in the traditional BPs there is a clear distinction between process participants and process "customers", in the case of this GKIBP the boundaries are very fluid. The process participants become process customers, not only as buyers of the book (as some did), but as "consumers" of co-created knowledge, learning not only from and about the content, but also from and about the design process, later adopting it in their own practice. Also, compared to the "traditional" organizational BPs, where process ownership roles are often clearly separated from process participants in order to support more efficient management and control of the assigned processes, it is possible to observe that in this case, all process participants were also process co-owners. Therefore, from the BP management and control, the emphasis has been shifted to BP leadership.

Finally the Technology component is still applicable but again comes in a very different form. While in the organizational context BP support systems and/or applications used to support individual process tasks are provided and managed by the

organization, the GKIBP participants took the full advantage of freely available tools for global collaboration, as well as provided their own tools and resources. For example, different tasks were supported by the collaborative forum made available to process participants. They also used YouTube to share video clips and visual presentations opening them for comments by process participants.

In summary, the above discussion offers a very strong support for the argument that GKIBPs do differ from organizational BPs, at least in this case. This, in turn answers our first research question, as well as builds a strong case for a new, more suitable BPM framework, as described in the next section.

A NEW BPM FRAMEWORK FOR KNOWLEDGE-INTENSIVE BUSINESS PROCESSES (RESEARCH QUESTION 2)

When examined in the context of GKIBP, as described by our motivating example, as well as the other examples found in the literature, it becomes obvious that Harmon’s framework needs to be modified to take into account the specificities of this category of BPs that are not necessarily organizationally bound. Therefore, based on our in-depth analysis of the motivating example, this research proposes a refined framework as depicted by Figure 4.

As our starting point, we replaced the Enterprise level with a more appropriate “Strategy level” to emphasize the value co-creation strategy, that does not need to be organizationally (or enterprise) bound. In our model, we elevated the People component of Harmon’s Implementation Level to a “Value Creation” Level to further emphasize the fact that value is co-created by knowledge-agents, who could be individuals but also organizational units. This also underscores the importance of knowledge-agents, who are essential for the process of a knowledge co-creation. It is important to note that this is fundamentally different from the “traditional” or organizationally bound BPM where organizational strategy is “translated” into a set of business processes, used to implement the strategy, with people (i.e. organizational roles) being allocated to the BPs. This particular aspect will be discussed in more details later in the paper.

Furthermore, the Technology component of Harmon’s Implementation level is replaced with a more appropriate “Support Level,” as the activities as this level mostly deals with the development of resources needed to *support* a GKIBP. In essence, the activities of acquiring and retaining the resources in the “Support Level” provide a fundament or structural support to the three upper levels: the “Strategy Level”, “Value Creation Level” and “Process Level”.

It is very important to observe that the proposed levels are not just syntactical replacements of the original wordings of Harmon’s levels. For example, we argue that our placement of the Value Creation Level, immediately below the Strategy Level and above the Process and Support Level, has very important implications for management and leadership of GKIBP as explained in the discussion section of this paper.

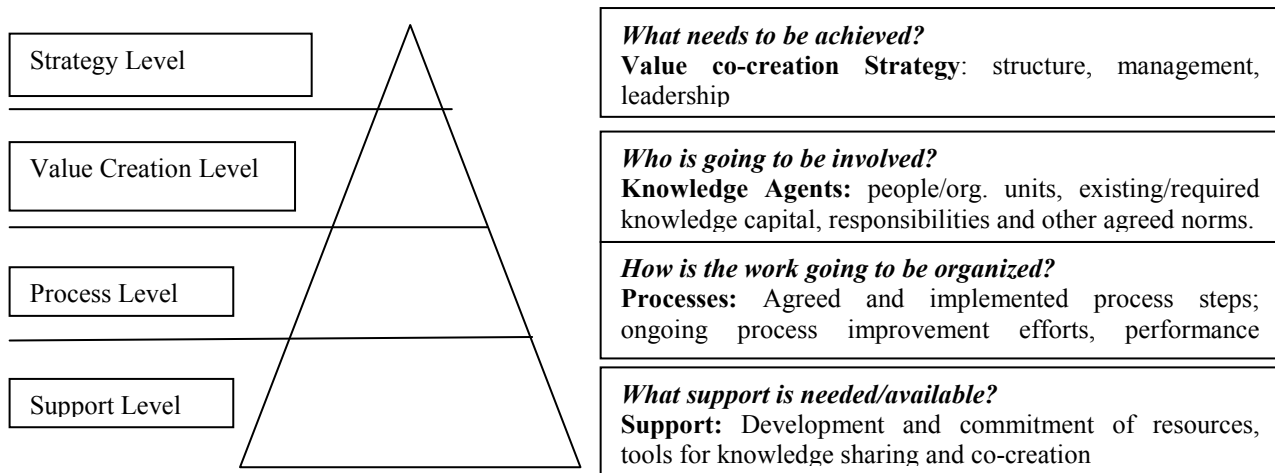


Figure 4. A Holistic Model of BPM for Global Knowledge-Intensive Business Process

The proposed holistic model is used to guide and inform our literature review as described in the next section.

LITERATURE REVIEW RESULTS (RESEARCH QUESTION 3)

In order to answer the third research question, we used the results of an in-depth literature review on global digital collaboration, previously conducted (Madlberger and Roztocki 2009a). The original review focused on the research papers

related to digital collaboration and published from 2000 – 2007 in the leading IS journals: European Journal of Information Systems (EJIS), Information Systems Journal (ISJ), Information Systems Research (ISR), Journal of AIS (JAIS), Journal of MIS (JMIS), and MIS Quarterly (MISQ). Further analysis, conducted in this project, has confirmed that out of 80 papers found to be related to digital collaboration only 25 papers discuss various issues related to its business process aspect. This is a set of papers we decided to use for our research because it provides a good overview of work published in the leading Information Systems journals.

Thus, it could be reasonably assumed that a sample of 25 papers is influential and relevant to guide our research of the current approaches various aspects of GKIBP.

The list of the analyzed papers and their focus in the regard to our research framework are depicted in Table 1.

Paper	Strategy	Value creation	Process	Support	Main Topic Studied
(Erat, Desouza, Schäfer-Jugel and Kurzawa 2006)			X		Improve knowledge exchange between organizations and customers
(Kotlarsky and Oshri 2005)				X	Human-related issues in globally distributed teams
(Levy, Loebbecke and Powell 2003)	X				Strategies for knowledge sharing when participants simultaneously collaborate and compete
(Lin, Huang and Burn 2007)	X				Strategic management of B2B e-commerce projects
(Zhang and Faerman 2007)			X		Leadership in the process of developing knowledge sharing systems
(Tang, Yasa and Forrester 2004)			X		Model for business process transformation
(Bala and Venkatesh 2007)			X		Interorganizational business process standards
(Bharadwaj, Bharadwaj and Bendoly 2007)			X		Process and coordination in manufacturing, marketing, and supply chain
(Malhotra, Gosain and El Sawy 2007)				X	Standard Electronic Business Interfaces in supply chain partnerships
(Saraf, Langdon and Gosain 2007)				X	Contribution of IS applications to performance
(Greenaway and Chan 2005)			X		Process of developing and implementing of policies for customer information privacy
(Narendra 2002)	X				Work flow architecture
(Soffer and Wand 2007)			X		Process modeling and analysis
(Wasko, Faraj and Teigland 2004)			X		Process of knowledge contribution in electronic networks of practice
(Chatfield and Yetton 2000)	X				Strategic payoff from EDI
(Clemons and Hitt 2004)			X		Process of dealing with poaching
(Espinosa, Cummings, Wilson and Pearce 2003)			X		Process of collaboration across multiple global firms
(Patnayakuni, Rai and Seth 2006)			X		Process of supply chain integration
(Wang, Tai and Wei 2006)			X		Process improvement in supply chain
(Lin, Geng and Whinston 2005)			X		Process of knowledge transfer between parties with asymmetric and incomplete information
(Malhotra, Gosain and El Sawy 2005)			X		Process of information sharing in supply chain
(Malhotra, Majchrzak, Carman and Lott 2001)			X		Process of managing virtual teams
(Paul and McDaniel Jr. 2004)			X		Effects of trust on collaboration process
(Rai, Patnayakuni and Seth 2006)				X	IT infrastructure integration for supply chain
(Tillquist, King and Woo 2002)	X				Scheme for governing organizational relationships
Total	5	0	16	4	

The results of our literature review show that a great majority of the examined papers focus on the process level in our modified pyramid for Global Knowledge-Intensive Business Process Analysis (16 out of 25). In contrast, only five papers focus on the strategy level and only four papers on the support level. The papers distribution is depicted in Figure 5.

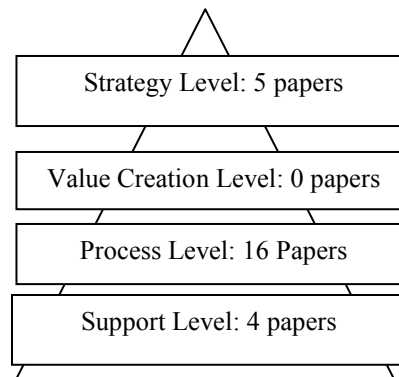


Figure 5. Paper Distribution by Topic of Investigation

As it could be seen from Figure 5, the most surprising result is the relatively small number of papers focusing on the support level that mostly deals with the development of resources need for successful GKIBP. In addition, the papers in our sample mostly examine possible contribution of the technical infrastructure to the collaboration process.

It is quite possible that the relatively small number of publications related the support level, somehow mirror the current status of IS mainstream research. Many of the research efforts are dedicated to various IS issues in large corporations. Thus, many of the authors may assume that companies will assure a sufficient level of support. For example, a technology department will automatically provide IS resources while the human resource department will deal with the human side of the process.

Unfortunately, a sufficient level of support is not always the case in many GKIBP and cannot be assumed to be provided. As shown in our previous example in the motivation section, in particular when the GKIBPs are driven by individuals, the necessary resources need to be acquired and retained in a very creative way. Therefore, compared to their organizational counterparts, in the case of GKIBP, process participants themselves may be expected to bring in or provide some aspects of process support.

Moreover, only five papers in our sample deals with the strategic aspect of GKIBP. It is quite possible that many authors simply assume that strategy, structure, and project management in digital collaborations initiatives are mandated from corporate top management. Indeed, very often papers dealing with the Critical Success Factors of organizational BPM initiatives, list top management support as top CSF. This is not applicable to GKIBP, where the Strategy Level has a very different function.

It is also important to observe that the existing research focuses on cross-organizational collaboration (B2B) without any possibility to involve individual knowledge agents. Furthermore, judging by the types of systems investigated (e.g. workflows, B2B e-commerce, supply chain), their corresponding BPs are highly structured and designed to support flows/movements of goods or financial transactions rather than co-creation of knowledge. Similarly the final outputs of these processes are again different, as published work focuses on provision of products and services, with clearly distinguished suppliers, process participants and customers. In the case of GKIBP, it is possible to observe that the boundaries between these roles are not so clear cut, as suppliers become participants but also, to some extent, process customers themselves. Further research is likely to lead to more insights related to these and other aspects of GKIBP, not currently considered by “organizationally” bounded BPs and related theories.

CONTRIBUTIONS AND IMPLICATIONS FOR RESEARCH AND PRACTICE

In addition to identifying the main components of a holistic approach to BPM, the increasingly influential models such as Harmon’s, also aim to explain the relationships between these components. More precisely, strategy defines organizational goals and objectives. It is then implemented/operationalized via BPs. These processes are executed by people in different organizational roles, supported by BPM and other systems. Our preliminary research confirms that in the case of GKIBP, there is a significantly different relationship between strategy and process level that in our case has been expressed by a an

additional level called “Value Creation”, to indicate that knowledge agents are identified first and then their work is coordinated by processes. In other words, while in organizational BPM, processes come first and people are seen as process participants, in the case of GKIBP, knowledge agents come first and then processes are used or even agreed upon, to enable knowledge co-creation.

We argue that this particular finding has profound consequences for management of these processes that are dependent on leadership rather than traditional management that very much implies organizational control.

Furthermore, the results of our literature review and identified research gap in combination with the proposed framework provide a robust basis for future research efforts. We argue that our framework may also be helpful for practice, primarily for various participants of GKIBP. It could help them in devising sound strategies and innovative business models for value co-creation and different models of engagement for the participating knowledge agents.

LIMITATIONS AND FUTURE RESEARCH

The research presented in this paper is subject of several limitations. First, only 25 papers published in six leading IS journals deal with the BP-related aspects of digital collaboration. Although this sample is reasonably large to draw the initial conclusions, a large sample will definitely benefit the research. In particular it would be interesting to include the articles that appear in journals outside the mainstream IS research. Frequently, these articles discuss highly creative use of IT in emerging economies (Roztocki and Weistroffer 2009). Second, we only use our research framework founded in the modified Harmon pyramid (2007) as the lenses in our literature review. In spite, of the fact that our framework offers a simple and elegant representation of the GKIBP, this model needs future refinements.

Most of the limitations provide interesting opportunities for future research efforts. For example, a future research could simply expand our sample of 25 papers and conduct a similar analysis on the expanded sample while other research projects may attempt to refine our model.

CONCLUSIONS AND FUTURE WORK

We believe that our framework, limited as it is, makes a substantial contribution to the existing body of knowledge because we propose how Harmon’s BP Pyramid extensively used by the mainstream BPM research and practice, may be modified and used for GKIBP. The proposed holistic model of for GKIBP should be considered as an important starting point. Our future research includes a more extensive literature review and further refinement of the proposed framework through more empirical studies of other examples of GKIBPs. To conclude, we hope that our work presented in this paper will inspire other researchers to examine more aspects of GKIBP and further expand the current boundaries of BPM as well as crowdsourcing.

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