Journal of International Technology and Information Management

Volume 22 | Issue 1 Article 3

11-1-2013

# Creativity, Coordination & Knowledge co-Creation on a Global Scale- The Process Perspective

Olivera Marjanovic

Narcyz Roztocki

# Creativity, Coordination and Knowledge Co-Creation on a Global Scale – The Process Perspective

**Olivera Marjanovic**
**University of Sydney**
**Australia**

**Narcyz Roztocki**
**State University of New York at New Palz**
**USA**

## ABSTRACT

*In very recent times new tools and technologies for peer-to-peer collaboration and coordination became easily and readily available taking knowledge creation processes outside of the organizational boundaries. 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 trough coordinated activities of knowledge agents, that may or may not come from an organizational setting. Drawing from, and combining the state-of-the art research findings from three disciplines: i) BPM (ii) Global Digital Collaboration and more recently (iii) Crowdsourcing and Collective Intelligence processes, this research aims to investigate the main characteristics of these processes through an exploratory case study. Our findings are then placed in the context of the current developments in BPM field, in particular the frameworks used to inform and guide BP Management today, demonstrating a need for their extension.*

## INTRODUCTION

Between 25% and 40% of the workforce can be classified as knowledge workers today, and this proportion is likely to increase in the future. (Davenport, 2010). Knowledge workers think for a living, solve problems, understand and meet the needs of customers, make complex decisions, as well as, collaborate and communicate with other people in the course of doing their work (Davenport, 2005). They are reflective practitioners who reflect "*on action,"* and while "*in action"* (Schon, 1983). They are the key to innovation and competitiveness in today's organization (Davenport 2010).

Knowledge is a combination of experience, context, interpretation and reflection and involves more human participation than information (Davenport, 2005). Knowledge emerges through human interaction (Kakihara and Sorensen, 2002). As such, it is inseparable from individuals and their actions (Davenport & Prusak, 1998). Thus, knowledge in a business context needs to be leveraged to create business value. A way to achieve it is through the business process (BP) perspective that provides a context for, and the overall purpose of knowledge work in an organization. Thus, BPs could be seen as a nexus around which knowledge sharing and creation can thrive (El Sawy & Josefek, 2003).



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

More recently, to address issues fundamental to knowledge economy and following the years of BP automation and a very mechanistic view of a BP, the field of *Business Process Management* (BPM) has been extended to include processes involving knowledge work. To distinguish them from highly repetitive, highly structured procedural processes, these processes are now termed "knowledge-intensive". Even more, these BPs are now considered to be the most valuable organisational processes today as they add the most value and have the greatest impact on long-term success (Davenport, 2005).

The process perspective sees the knowledge activities as interconnected and as such should be coordinated in order to contribute to business value creation, but not in an a priori, rigid way. While the research on knowledge-intensive processes is still emerging, based on a literature review (described later in the paper), it is possible to observe that these processes are predominantly studied in the organizational context i.e. either within or across *formal* organisations. However, in very recent times new tools and technologies for peer-to-peer collaboration and coordination became easily and readily available taking knowledge BPs outside of the organizational boundaries to include independent knowledge workers who are not organisationally bound. "We are witnessing a growing trend of decentralization and disintermediation that is deeply modifying the organization of our society, traditionally based on high-level of hierarchical specialization and delegation with power concentration and centralization in the hands of few powerful individuals, global institutions or multinational companies" (Iandoli, 2009).

We now see the emergence of global innovation and new types of business processes that could be best described as global knowledge-intensive BP (GKIBP). In this research we define a GKIBP as:

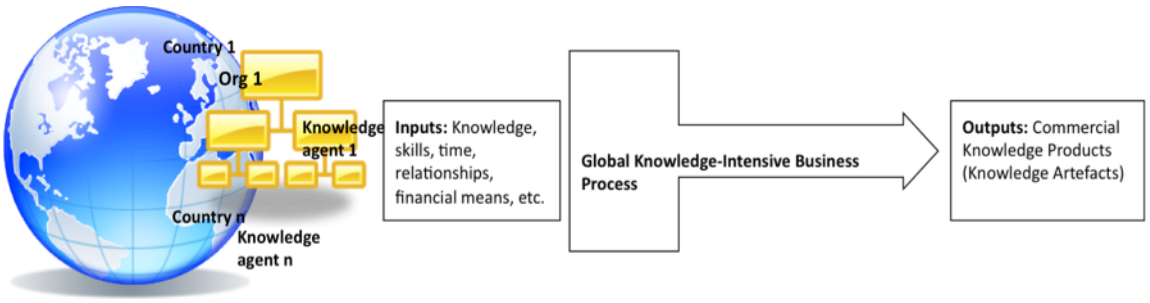
- A process of coordinated knowledge co-creation without pre-defined coordination patterns
- This process is executed by various knowledge agents (organisations, independent or organisationally bound individuals)
- From more than one country/geographical location,
- Resulting in a knowledge product (artefact) of a commercial/business value.

This definition enables us to distinguish GKIBPs from ordinary global supply chain co-ordination and other B2B processes as they are organisationally-bound (i.e. regulated by the participating organisations' norms and regulations) and do not involve independent knowledge agents. However, these independent knowledge agents may be an important resource in knowledge co-creation, collaborative processes in virtual communities (such as Wikipedia) are also excluded as they do not result in an artefact of a commercial products distributed to paying customers. Compared to the concept of "virtual work" defined by Livermore (2006) as "the work produced by virtual teams" we focus on the work producing a knowledge artefact of business value, thus these global processes could be seen as business processes. Figure 1 depicts a high-level conceptual model of GKIBP.



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

**Figure 1: A high-level conceptual model of a Global Knowledge-intensive Business Process.**




This research is motivated by a research gap perceived across three different research communities - all interested in different aspects of global knowledge-intensive BPs: (i) BPM, (ii) Global Digital Collaboration and more recently, (iii) Crowdsourcing and Collective Intelligence processes in the global context. Based on the literature review described later in the paper, we argue that none of these areas provide sufficient coverage of GKIBPs as defined in this paper.

As a starting point for this research, we argue that like any other processes, GKIBPs need to be managed. However, given the fact that they extend the boundaries of formal organizations to include knowledge agents not bound by formal roles and policies, management of these processes is expected to create brand new challenges for BPM. Knowledge agents not bound by formal roles and policies are more flexible and independent than members of a formal organization, have different priorities and, thus, may require different style of management. By focusing on management of these BPs, we posit that the traditional frameworks and theories developed for traditional organisationally bound BPs need to be re-examined, and if required, changed to accommodate management of these global processes.

Drawing from, and combining the state-of-the art research findings from all three disciplines, we aim to investigate the main characteristics of these processes and by doing so, extend the current boundaries of BPM. Through an exploratory case study we are interested to investigate the main characteristics of these processes from the perspective of the four pillars of BPM, as defined by Harmon (2007): strategy, processes, people and technology. Our findings are then placed in the context of the current developments in BPM field, in particular the frameworks used to inform and guide management of business processes today.

The reminder of the paper is structured as follows. The next section sets the foundation for this research and offers a literature review conducted across three different areas: BPM, Global digital collaboration and crowdsourcing/ collective intelligence. This is followed by a section that describes our research focus and the key research questions. The subsequent sections describe our research method and the main research findings, followed by a brief discussion of the key contributions of this work. The final section describes the main conclusions and limitations of this research and outlines our plans for future research.



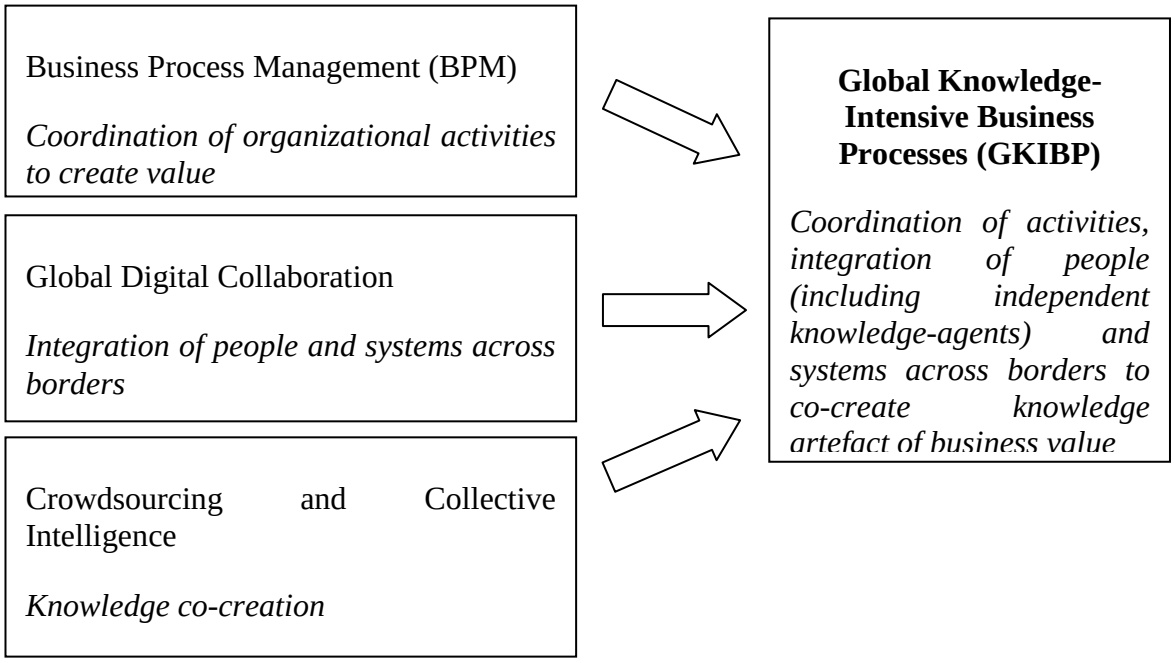
ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

## FOUNDATION CONCEPTS AND MULTIDISCIPLINARY RESEARCH REVIEW

### *Global Knowledge-Intensive Business Processes - The Multidisciplinary Perspective*

The foundation concepts for this research come from three different fields: (i) BPM, (ii) Global Digital Collaboration and (iii) Crowdsourcing and Collective Intelligence. As shown all three fields consider different aspects of global KIBP but also demonstrate some important research gaps, individually and in combination, that have motivated our research, as explained in this section. The relation of the three fields to the topic of our investigation is depicted in Figure 2.

**Figure 2: The intellectual foundations of Global Knowledge-intensive Business Processes.**




After defining Global Knowledge-Intensive BPs, we proceeded with a literature review across three different fields (BPM, global digital collaboration and crowdsourcing/collective intelligence). The main objective was to identify and confirm process-related research gaps not only within individual disciplines, but across all three.

Thus, using various key word searches, we screened multiple databases for paper related to the topic of our investigation. The keywords that we used for our search included: business process, crowdsourcing, collective intelligence, digital collaboration, knowledge creation, and wisdom of crowds. In order to be included in our sample, the papers had to satisfy two main criteria. First, the paper had to be published in an academic journal. Second, given our aim to investigate these processes beyond technology, we focused on the Information Systems research as it also considers people, process and strategy-related concepts. Papers that do not satisfied the above criteria were not included in the final sample.



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

Overall, we were able to identify 244 academic papers published in 104 journals from 1990 to 2011. The distribution by year of publication and topic of investigation is depicted in Table 1.

As illustrated by Table 1, the BPM appears to be the most mature of all three fields with most publications and longer publications record. In contrast, the topic of Crowdsourcing and Collective Intelligence seems to be not only emergent but fast growing field. Somehow surprisingly, the field of Digital Global Collaboration shows the lowest number of papers related to BPs.

**Table 1: Sample characteristics - Distribution by year of publication and topic of investigation.**

| Year | Business Processes Management | Crowdsourcing and Collective Intelligence | Global Digital Collaboration | Total |
|---|---|---|---|---|
| 1990 | 1 | 0 | 0 | 1 |
| 1991 | 2 | 0 | 0 | 2 |
| 1992 | 1 | 0 | 0 | 1 |
| 1993 | 0 | 0 | 0 | 0 |
| 1994 | 0 | 0 | 0 | 0 |
| 1995 | 2 | 0 | 0 | 2 |
| 1996 | 6 | 0 | 0 | 6 |
| 1997 | 12 | 0 | 2 | 14 |
| 1998 | 8 | 0 | 0 | 8 |
| 1999 | 8 | 0 | 3 | 11 |
| 2000 | 3 | 0 | 1 | 4 |
| 2001 | 5 | 0 | 4 | 9 |
| 2002 | 6 | 0 | 0 | 6 |
| 2003 | 6 | 0 | 2 | 8 |
| 2004 | 9 | 0 | 1 | 10 |
| 2005 | 4 | 0 | 2 | 6 |
| 2006 | 4 | 0 | 3 | 7 |
| 2007 | 14 | 0 | 1 | 15 |
| 2008 | 9 | 5 | 6 | 20 |



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

| | | | | |
|---|---|---|---|---|
| 2009 | 12 | 12 | 3 | 27 |
| 2010 | 9 | 21 | 6 | 36 |
| 2011 | 21 | 19 | 8 | 48 |
| In press | 0 | 3 | 0 | 3 |
| **Total** | **142** | **60** | **42** | **244** |

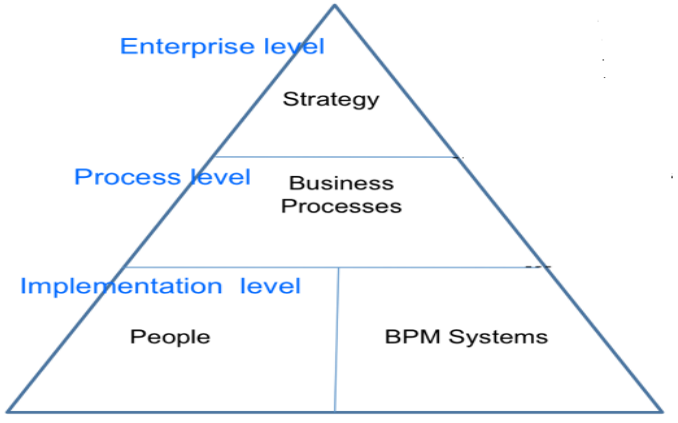
## IDENTIFICATION OF RESEARCH GAPS IN INDIVIDUAL DISCIPLINES

### *Business Process Management*

This section introduces some basic terms and offers a brief overview of a well-known theoretical framework widely used today to inform and guide BPM in the organizational context. In general, a BP is defined as a set of coordinated activities/tasks performed by process participants towards a shared business objective (Lindsay et al., 2003). BPs are guided by various policies, procedures, and structures. In terms of their structure, BPs range from highly structured transactional processes typically found at the operational level to more complex ones that cannot be easily structured due to the complex situational decisions and knowledge work involved. BPs are supported by a wide range of BPM systems and other technologies that could range from simple BP automation systems, to more complex systems designed to support knowledge creation and involve ad-hoc communication/collaboration and coordination.

From an earlier focus on process automation and workflow technology, BPM has evolved beyond processes and technology and now includes the people and strategy components. Figure 3 depicts a widely known model of BPM by Harmon (2007; Harmon, 2010) called the BP Trends pyramid. The model was originally derived from a worldwide survey of BP Trends' members – the largest international community of BPM industry practitioners.

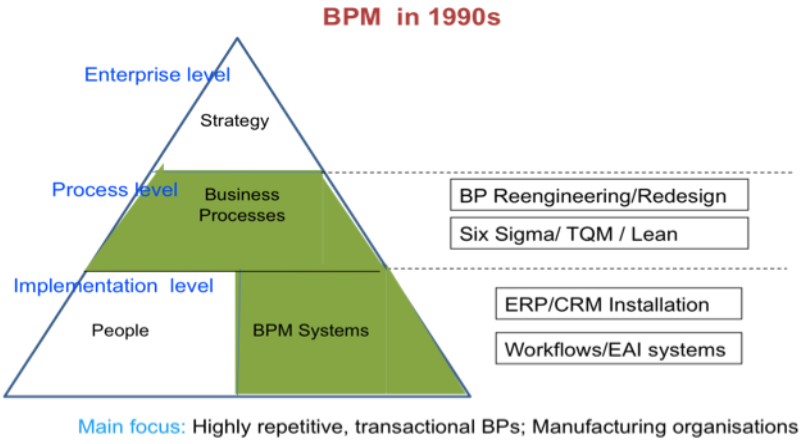
**Figure 3: The BP Trends Pyramid by Harmon (2010).**



As depicted, the Enterprise level focuses on end-to-end enterprise wide processes, defining process governance and measurement systems while seeking to align processes with organizational strategy. At the process level, organizations are focusing on process improvement and new methods for process analysis and design. Finally, at the implementation level organizations are focusing on development of technological and human resources designed to support processes. They include process support systems and people - process participants in different formal roles. Thus, people are seen as supporters or "implementers" of a strategy-driven process.

The previous two decades have seen BPM predominantly practiced at the *Business Process level* and within the *Technology component* of the Implementation level, as indicated by Figure 4. The main focus was on the highly repetitive, transactional BPs and manufacturing organizations

**Figure 4. The main focus of BPM in early 1990s, after Harmon (2010).**

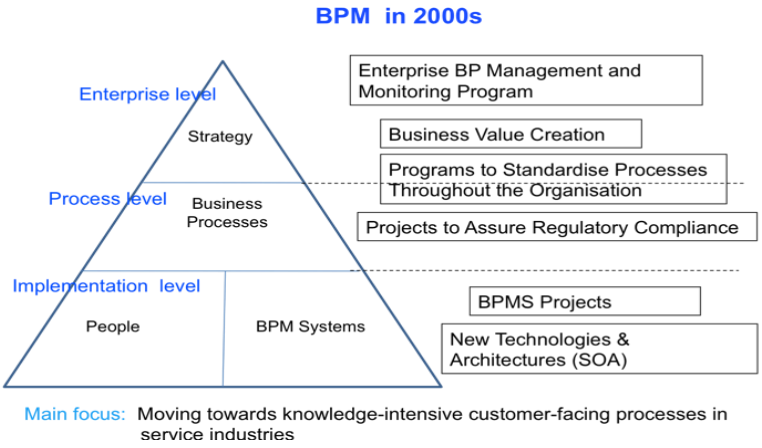



As the BPM systems entered the *mainstream* enterprise applications across industry sectors, the BPM focus has gradually expanded to include all four areas of the pyramid, with many tools and methodologies already available, as indicated by Figure 5.



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

**Figure 5: The expanding focus on BPM in 2000s, after Harmon (2010).**




In recent times, BPM has started to evolve beyond operational BPs to include knowledge-intensive processes, see for example (Davenport 2010; Harrison-Broninski, 2010). A BP is considered to be 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, these BPs cannot be completely pre-defined and fully structured as it is the case with transactional, operational BPs.

To distinguish them from production processes, Harrison-Broninski coined the term human-driven processes that are based on human collaboration and innovation. Examples include: (i) High-level work, such as organizational control and change; (ii) Knowledge work, such as R&D, sales support, team management and customer service; (iii) Sectors in which human activity is critical, such as health care, law, policing, and disaster relief" (Harrison-Broninski, 2010, pp.444).

By definition, GKIBPs as defined in this research are also knowledge intensive. The fact that they are also *global* creates an additional level of complexity. "Managing global knowledge that crosses the lines between business units and departments that are dispersed geographically across continents require consideration of fundamentally different set of issues and factors (Nemati, 2002, pp.6). Finally, these processes are not organizationally bound, thus creating new challenges for BPM as discussed in the subsequent sections of this paper.

### *Global Digital Collaboration – The Process Perspective*

In recent years, research on various aspects of cross-border digital collaboration is receiving an enormous rise in popularity (Romano Jr. et al., 2010). Building on the work of Romano Jr. et al., we define the digital cross-organizational and cross-border collaboration as "the integration of people, information systems, processes and infrastructure across organizations, borders, nations and world regions to enable productive teamwork and mutual goal attainment" (Romano Jr. et al., 2007).



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

Given the fact that digital cross-organizational collaboration is implemented through a set of processes that are digitally enabled and often global by nature, this research area is highly relevant for our work on GKIBPs. However, there are some significant differences. Processes considered by the cross-organizational collaboration community are by nature business-to-business (B2B) processes and do not involve any individual knowledge agents. Furthermore, these processes 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.

Even though its processes cannot be classified as GKIBP as defined in this research, the area of cross-organizational collaboration does offer some very interesting insights and inspiration for our work. This is especially the case with its global aspects such as for example, cultural aspects and cross-border collaboration in virtual team settings.

### *Crowdsourcing and Collective Intelligence – The Process perspective*

From its beginning, the crowdsourcing and collective intelligence initiatives have evolved into a growth industry currently employing over 2 million knowledge workers, contributing over a half a billion dollars to the digital economy (Vukovic & Bartolini, 2010b). The term crowdsourcing is attributed to Jeff Howe who defined it as "the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined and generally large network of people in the form of open call' (Howe, 2006). Later on this definition was extended by Howe to involve some form of payment in order to distinguish it from community based examples of collective intelligence such as Wikipedia and Linux with large groups of people working together but without relying on either market signals of managerial commands as in traditional organizations (Whitla, 2009).

The concept of crowdsourcing and its practical applications are highly related to BP and our work on GKIBP. First of all, crowdsourcing has been considered as a method of outsourcing of a business process or some of its tasks to a large, to some extend anonymous group of outsiders. For example, La Vecchia and Cisternino (2010) define *Business Process Crowdsourcing* as outsourcing of complex internal business processes to the crowd. They argue that some of the traditional business processes could be effectively transformed into crowdsourced BPs where "Web 2.0, social networks and business process management are combined to deploy business critical processes to the Internet, getting the same level of quality and control of traditional outsourcing approaches with conventional workforce" (pp. 425). They also argue for a new model of crowdsourcing for the enterprise business processes. Similarly, Vukovic and Bartolini (2010b) use the term "crowd-driven" processes. "Crowdsourcing has a potential to significantly transform the business processes, by incorporating the knowledge and skills of globally distributed experts to drive business objectives, at shorter cycles and lower cost" (Vukovic & Bartolini, 2010b, p.773).

Second, an increasing number of researchers are now investigating a *process of crowdsourcing*, rather than *crowdsourcing of a BP* (Geiger et al., 2011; Malone, 2010; Ren, 2011; Vukovic & Bartolini, 2010a). For example, Malone et. al. (2010) see the crowdsourcing process as one of the dimension of the collective intelligence gene describing "*how the work is being done"*. The

authors illustrate that the how component usually involves the "collaboration" gene with at least one "Decide" gene to capture the coordination and the final assembly of the outcomes of the individuals' knowledge work.

In another related work Geiger et al. (2011)argue that most crowdsourcing applications do not deal with the process of crowdsourcing but with potential tasks, types of communities or governance structures. In order to address this important research gap, the authors propose a systematic classification of crowdsourcing processes based on four characteristics (dimensions): pre-selection of contributors, accessibility of peer contribution, aggregation of contribution and remuneration for contribution. They are derived from an in-depth analysis of the most recognizable examples of crowdsourcing currently described in the literature.

BP structure is also considered by Ren (2011). The author proposes a high-level BP model consisting of four tasks: "Identifying the crowd", "Requesting the crowd", "Evaluating the crowd" and "retaining the crowd".

While these existing studies offer a valuable insight into the current thinking about BPs within the crowdsourcing community, they predominantly focus on process structure often at a very high-level of abstraction as in the previous examples of Geiger et al. (2011) and Ren (2011) or process components at the very low level of abstraction (such as collective intelligence "genome"). Most importantly, these processes are not considered from the business perspective and in the business context as intended by our research on GKIBP. When put in the context of previous work by Iandoli (2009), our work is relates to the identified micro area of research called management collective intelligence. Given the fact that BPM has been identified as one of the key management/business challenges in organizations today (Gartner, 2010), we argue that management of BPs is equally, if not more important for management of global virtual organizations as targeted by this research.

### *Synthesis of the Research Gaps*

Our analysis of the related work all three areas (as described in the previous three subsections) it is possible to confirm that the GKIBP as defined in this research are not well understood. While each area does contribute to a better understanding of some aspects of the research phenomenon, none of them offers a complete picture. For example, in spite of the abundance of publications on digital cross-border collaboration, GKIBP, in particular the synergistic process of knowledge co-creation, especially beyond formal B2B scenarios, is not currently considered by this community. In addition, despite the increased focus on knowledge-intensive processes within BPM community, both in industry (Gartner, 2008) and academia (Gartner, 2008; Marjanovic, 2010; Sarnikar & Deokar, 2010), this type of knowledge-intensive processes that are not *organizationally* or *cross-organizationally bound* are yet to be studied. Similarly in the area of crowdsourcing/collective intelligence, while the researchers in this growing research community focus on many interesting aspects of crowdsourcing, even in relation to BPs, they are yet to investigate crowdsourcing processes in a more holistic way and beyond process structure, or more precisely BPM perspective, as we propose to do in this research.

Table 2 lists a summary of the research gaps, identified through synthesis of research findings. Taken in combination, these research gaps offer the main motivation for our work.



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

**Table 2: GKIBP-related Research gaps.**

| Research areas | Summary of research gaps in relation to GKIBP |
|---|---|
| BPM | - Traditional BPs are organizationally bound even in B2B scenarios such as in collaborative BPs<br>- GKIBPs are not considered |
| Global digital collaboration | - Processes considered are predominately cross-organizational (as in B2B supply chains)<br>- Main focus on exchange of goods and services (as in supply chain) rather than co-creation of knowledge<br>- Mainly focused on technology and process aspects with very limited consideration of strategy |
| Crowdsourcing/collective intelligence | - Broader BPM context has not been considered<br>- When processes are considered, the main focus is on high-level process structure;<br>- The process of crowdsourcing is not perceived as a business process but rather as a coordination process<br>- The management of crowdsourcing takes frequently company's position and, thus, deals mostly with motivating the outsiders to provided their knowledge and expertise |

Given their multidisciplinary nature, the GKIBPs could be investigated from all three different perspectives. However in this research we focus on the BPM perspective, motivated by the fact that these processes need to be taken outside the organizational boundaries and traditional "management" approaches, and therefore, managed in yet to be understood ways.

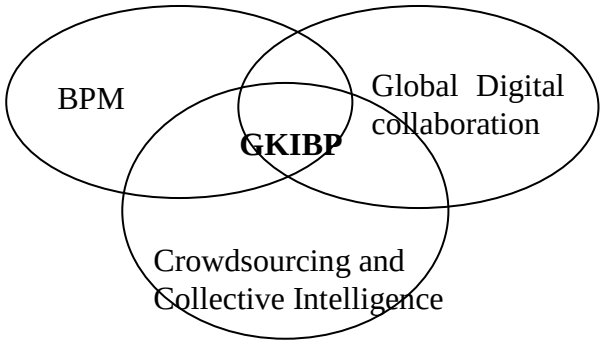
## RESEARCH FOCUS, AIMS AND OBJECTIVES

Focusing on the *process* perspective, this research aims to investigate GKIBPs and their management. More precisely, this paper aims to address the following research questions:

1. How do GKIBP differ from organizationally bound BPs, in terms of their management?
2. Do the same BPM frameworks used to describe and manage organizational BPs in a holistic way apply to GKIBPs or are new framework required?

We argue that all these questions are important in order to set the foundations for the research in this area, as well as test the current BPM frameworks in order to confirm their applicability and/or create new extensions. Figure 6 illustrates the multidisciplinary focus of our work.

**Figure 6: GKIBP - A multidisciplinary perspective.**



## RESEARCH METHOD

Guided by our analysis of the papers in the identified multidisciplinary sample, we decided to start from the crowdsourcing processes as they were identified as more related to GKIBPs than the traditional organizationally bound BPs or processes found in the global collaboration scenarios.

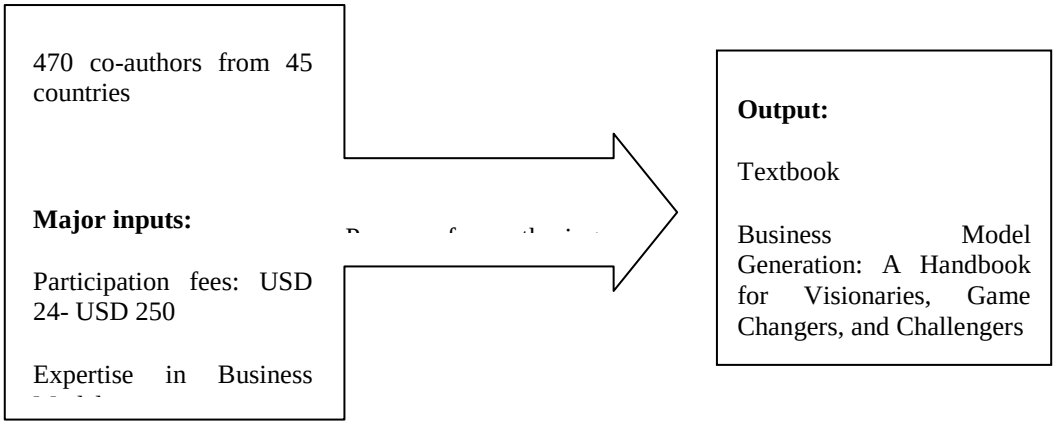
Then we reviewed several the crowdsourcing examples, published by the current literature or found in practice (Corney et al., 2009; Geiger et al., 2011; Howe, 2009; Malone T., 2010; Rouse, 2010; Schenk & Guittard, 2011; Zwass, 2010) looking for a most suitable example of GKIBP in terms of its characteristics as well as access to the publicly available data.

The outcome of this phase is the chosen example of GKIBP called "Textbook production" by Osterwalder and Pigneur (2010). In this global crowdsourcing project, a group of 470 authors (knowledge agents) from 45 countries worked together to produce a main knowledge artifact – a commercial textbook on business model creation.

To participate in this project the potential co-authors had to pay an initial admission fee of USD 24.00 (Walter & 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, the co-authors worked on various tasks necessary for writing and publishing a textbook. Their main tasks were to search for errors and 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 7.

**Figure 7: An example of Global Knowledge-intensive Business Process – The textbook production process.**



In order to answer the first research question, we adopted the previously described Harmon's (2010) framework , as the theoretical lenses and undertook an in-depth exploratory case study of the motivating example of GKIBP. Harmon's framework was originally created by a worldwide community of practitioners and as such thoroughly tested in practice. The same framework has also been acknowledge and used by the academic community and recently included in the latest edition of the BPM handbook (see BPM handbook, 2010).

Our 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), related posts on YouTube as well as the main outcome of this process – the co-created book by Osterwalder and Pigneur (2010) - that offered valuable insights on the process of textbook production. 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. Detailed discussion of each step follows below.

## FINDINGS

***Research Question 1:*** *How do GKIBP differ from organizationally bound BPs, in terms of their management?*

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 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 GKBIP 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.



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

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. In addition, they provided marketing of the books to friends, family, co-workers. 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.

**Table 3: Traditional BPM versus BPM for Global Knowledge-intensive Business Processes.**

| | **Traditional BPM** | **BPM for Global Knowledge-intensive Business Processes** |
|---|---|---|
| Process-related value proposition | Create value by strategy execution | Create value by negotiating a process how to do it |
| **Individual components** | | |
| Strategy | Defined by organization's strategy | Initially defined by the leader(s)/initiators of the crowdsourcing efforts, gradually co-created |
| Process | - Structure driven<br><br>-Clear definition of process tasks, participants and their roles as well as pre-defined coordination patterns | - Goal driven<br>- Emerging coordination and collaboration patterns<br>- The overall process and the required tasks are co-created, based on real-time needs and progress |
| People | Resources for BP implementation | Various, often very diverse knowledge agents |

| | | |
|---|---|---|
| Technology | Provided and managed by organizations | Provided and self-managed (outside of the process) by participants |
| **Interdependency among components** | | |
| Dominant component | Strategy | People (value-creation) |
| Relationships | Top-down approach to Strategy making:<br>*Strategy*<br>determines *Processes*<br>implemented by<br>*People*<br>supported by<br>*Technology* | Value driven<br>The people and strategy component co-evolve, shaping each other. |

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.

## ***Research Question 2:*** *Do the came BPM frameworks apply?*

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 8.

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.

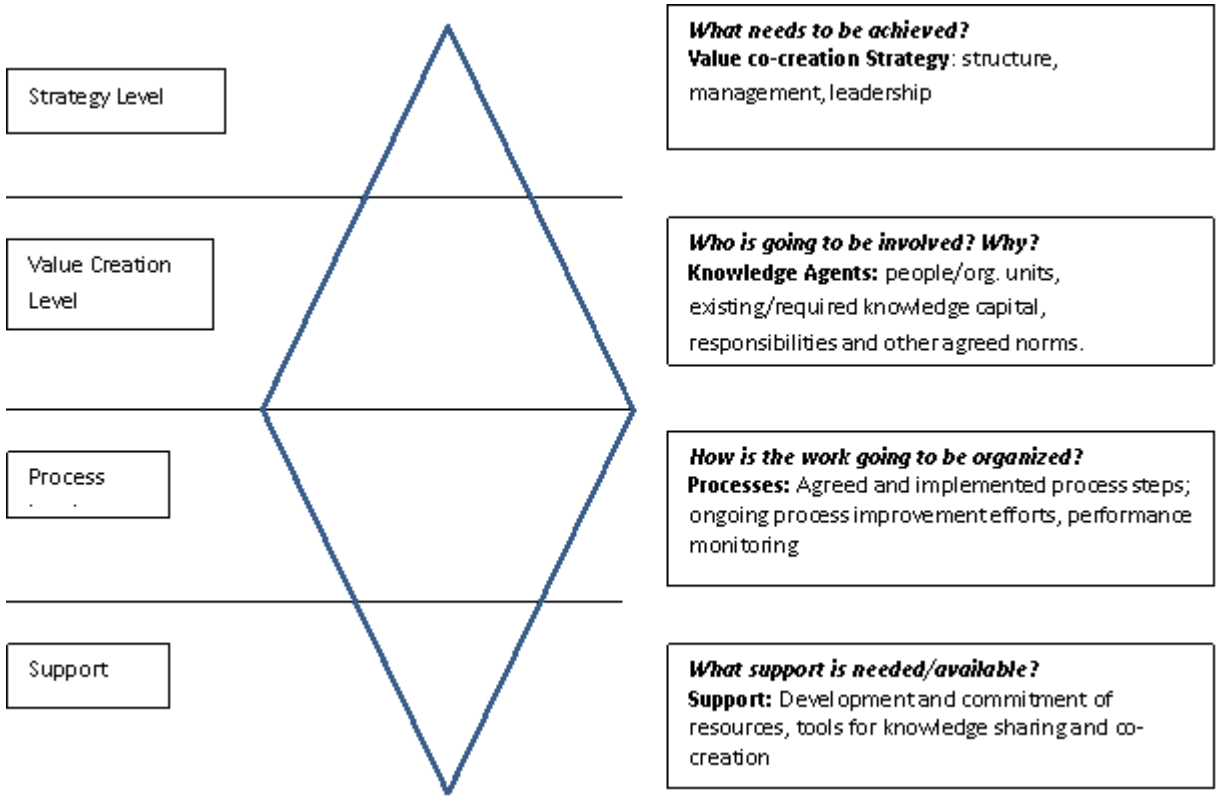


ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

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. In Harmon's model, the people and IT components are seen and therefore managed as the resources used to implement processes – thus the name "the implementation" level. By placing the Value creation level above the process, we acknowledge that processes are used to "implement" and co-ordinate value creation activities by knowledge agents (people), not the other way around. This also changes the emphasis of process management that in case of GKIBP needs to be changed to process leadership. Figure 8 depicts the proposed overall model.

**Figure 8: Management of Global Knowledge-intensive Business Processes – GKIBP Diamond.**




## 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



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

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 indicates 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 (or simply human resources) , in the case of GKIBP, knowledge agents come first and then processes play a more supportive role and are used or even agreed upon, to enable and structure 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 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.

Even though the main focus of this paper was not on knowledge management (KM), we argue that GKIBPs call for the existing theories and models to be at least revisited, if not extended, both in the contexts of intra- and inter-organizational knowledge sharing. For example, previous research on knowledge sharing in an organization by Huang et. al. (2008), confirms the importance of the cultural context, but also demonstrates that "sharing of knowledge by employees depends on heightened levels of trust between work-group members" (Huang, et. al, p. 82). While the cultural context is certainly important for management of GKIBPs as defined in this paper, the concept of "trust" needs to be re-examined, as the process participants may not even know each other, as in the case of textbook production by (Osterwalder and Pigneur, 2010). Similarly, prior models, such as one by (Hsu and Wang, 2008) also need to be revisited, especially with respect to the knowledge sharing policies and practices, that in the case of GKIBPs are not normatively regulated, but agreed upon as the process progresses. Therefore, GKIBP offer new opportunities to progress the current KM research.

## CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH

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, but nevertheless starting point. We plan to refine it by future empirical studies.

The research presented in this paper is subject of several limitations. Although our sample of articles is reasonably large to draw the initial conclusions, a larger sample will definitely benefit the research. In particular it would be interesting to include the articles that appear in journals



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

outside the mainstream IS research. Frequently, these articles discuss highly creative use of IT in emerging economies (Roztocki & Weistroffer, 2009). Second, we only use our research framework founded in the modified Harmon pyramid (2010) 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. Finally, we consider only one example of GKIBP and analyze it only from the process perspective.

Most of the limitations provide interesting opportunities for future research efforts. For example, our future research includes empirical analysis of more examples of GKIBP form the process as well as other perspectives such as knowledge, cultural and ethical aspects – all necessary for the effective management of these processes.

As this mode of work is likely to be even more prominent in the future due to many factors, including globalization, new technologies, emerging economies, as previously argued by Friedman (2005) and Tapscott &Williams (2010), we argue that GKIBPs and their management will become an even more important area of research and practice. We hope that our work presented in this paper will inspire other researchers to examine the less examined aspects of GKIBP and further expand our knowledge about this interesting multi-disciplinary field.

## REFERENCES

Corney, J. R., Torres-Sanchez, C., Jagadeesan, A. P., & Regli, W. C. (2009). Outsourcing labour to the cloud. *International Journal of Innovation and Sustainable Development, 4*(4)**,** 294-313.

Davenport, T. (2005). *Thinking for a Living*, Harvard Business School Press.

Davenport, T. (2010). Process Management for Knowledge Work. In vom Brocke, J. & Rosemann, M. (Eds.), *Handbook on Business Process Management* (Vol. 1). Heidelberg, Springer**,** 17-35.

Davenport, T. & Prusak, L. (1998). *Working Knowledge: How Organisations Manage What They Know*, Boston, Massachusetts, Harvard Business School Press.

El Sawy, O. A. & Josefek, R. A. (2003). Business Process as Nexus of Knowledge. In Holsapple, C. (Ed.), *Handbook on Knowledge Management: Knowledge Matters,* (Vol. 1). Springer**,** 425-438.

Friedman, T. L. (2005). *The World is Flat: A Brief History of the Twenty-first Century*, Farrar, Straus and Giroux.

Gartner (2008). Hype Cycle for Business Process Management. *Gartner Research.* Gartner Research.

Gartner (2010). Gartner EXP Worldwide Survey of Nearly 1,600 CIOs Shows IT Budgets in 2010 to be at 2005 Levels.

  ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

Geiger, D., Seedorf, S., Schulze, T., Nickerson, R. C., & Schader, M. (2011). Managing the Crowd: Towards a Taxonomy of Crowdsourcing Processes. *Proceedings of the 17th Americas Conference on Information System (AMCIS 2011)*. Detroit, MI.

Hammer, M. (2010). What is Business Process Management? In Brocke, J., Schmidt, G. J., & Bernus, P. (Eds.). *International Handbook on Information Systems: Handbook on Business Process Management,* Vol. 1). Springer**,** 3-16.

Harmon, P. (2007). *Business Process Change: A Manager's Guide to Improving, Redesigning, and Automating Processes*, Morgan Kaufmann.

Harmon, P. (2010). The Scope and Evolution of Business Process Management. In vom Brocke J. & Rosemann, M. (Eds.), *Handbook on Business Process Management,* (Vol. 1). Heidelberg, Springer**,** 37-81.

Harrison-Broninski, K. (2010). Dealing with Human-Driven Processes. In vom Brocke, J. & Rosemann, M. (Eds.), *Handbook on Business Process Management,* (Vol. 2). Heidelberg, Springer**,** 443-463.

Howe, J. (2006). The rise of crowdsourcing, *Wired, 14*(6).

Howe, J. (2009). *Crowdsourcing: Why the Power of the Crowd is Driving the Future of Business,* Random House, Inc.

Hsu, I-C & Wang, Y-S. (2008). The Impact of Leadership Style on Knowledge-Sharing Intentions in China. *Journal of Global Information Management*, 16(3), 45-73.

Huang, Q, Davison, R. M., Liu, H., & Gu, J. (2008). A Model of Intraorganisational Knowledge Sharing: Development and Initial Test, *Journal of Global Information Management*, 16(4), 67-91.

Iandoli, L. (2009). Leveraging the Power of Collective Intelligence through IT-enabled Global Collaboration, *Journal of Global Information Technology Management, 12*(3)**,** 1-6.

Kakihara, M., & Sorensen, C. (2002). Exploring Knowledge Emergence:From Chaos to Organizational Knowledge. *Journal of Global Information Technology Management, 5*(3)**,** 48-66.

La Vecchia, G., & Cisterino, A. (2010). Collaborative Workforce, Business Process Crowdsourcing as an Alternative of BPO. *Lecture Notes in Computer Science, 6385/2010***,** 425-430.

Lindsay, A., Downs, D., & Lunn, K. (2003). Business processes—attempts to find a definition. *Information and Software Technology, 15*(1)**,** 1015-1019.

Livermore, C. R. (2006). Virtual Work in a Global Context. J*ournal of Global Information Technology Management, 9*(1)**,** 1-3.

  ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

Malone, T. L. R. & Dellarocas, C. (2010). The Collective Intelligence Genome. *MIT Sloan Management Review, 51*(3).

Marjanovic, O. (2010). The Importance of Process Thinking in Business Intelligence. *International Journal of Business Intelligence Research, 1*(4)**,** 29-46.

Nemati, H. R. (2002). Global Knowledge Management: Exploring A Framework For Research. *Journal of Global Information Technology Management, 5*(3)**,** 1-11.

Osterwalder, A. & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*, John Wiley & Sons.

Ren, J. (2011). Exploring the Process of Web-based Crowdsourcing Innovation. *Proceedings of the 17th Americas Conference on Information System (AMCIS 2011)*. Detroit, MI.

Romano Jr., N. C., Pick, J. B., & Roztocki, N. (2007). Editorial: Introduction to the Special Issue on Collaboration Issues in Cross-Organizational and Cross-Border IS/IT. *Journal of Information Technology Theory and Application, 8*(4)**,** 3-6.

Romano Jr., N. C., Pick, J. B., & Roztocki, N. (2010). A motivational model for technology-supported cross-organizational and cross-border collaboration. *European Journal of Information Systems, 19*(2)**,** 117-133.

Rouse, A. C. (2010). A preliminary taxonomy of crowdsourcing. *Proceedings of the Australasian Conference on Information Systems (ACIS 2010)*. Brisbane, Australia.

Roztocki, N. & Weistroffer, H. R. (2009). Research trends in information and communications technology in developing, emerging and transition economies. *Roczniki Kolegium Analiz Ekonomicznych (Annals of the Collegium of Economic Analysis), 20***,** 113-127.

Sarnikar, S. & Deokar, A. (2010). Knowledge Management Systems for Knowledge-Intensive Processes: Design Approach and an Illustrative Example. *Proceedings of the 43th Hawaii International Conference on Systems Science (HICSS 2010)*. Kauai, Hawaii, USA.

Schenk, E. & Guittard, C. (2011). Towards a characterization of crowdsourcing practices. *Journal of Innovation Economics, 7*(1)**,** 93.

Schon, D. A. (1983). *The Reflective Practitioner: How Professionals Think in Action*, Basic Books.

Tapscott, D. & Williams, A. D. (2010). *Wikinomics: How Mass Collaboration Changes Everything*, Portfolio Trade.

Vukovic, M. & Bartolini, C. (2010a). Crowd-Driven Processes: State of the Art and Research Challenges, *Lecture Notes in Computer Science, 6470/2010***,** 733.

  **ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy**

Vukovic, M. & Bartolini, C. (2010b). Towards a Research Agenda for Enterprise Crowdsourcing. *Lecture Notes in Computer Science, 6415/2010***,** 425-434.

Walter, T. P. & Back, A. (2010). Crowdsourcing as a Business Model: An exploration of emergent textbooks harnessing the wisdom of crowds. *Proceedings of the 23rd Bled eConference*. Bled, Slovenia.

Whitla, P. (2009). Crowdsourcing and its application in marketing activities. *Contemporary Management Research, 5*(1)**,** 15-28.

Zwass, V. (2010). Co-Creation: Toward a Taxonomy and an Integrated Research Perspective. *International Journal of Electronic Commerce, 15*(1)**,** 11-48.

## COMMUNICATIONS

**Olivera Marjanovic**
University of Sydney
Business School, BIS Discipline,
Room 434, Building H69
Sydney NSW, 2006
Australia

**Narcyz Roztocki**
State University of New York at New Palz
School of Business, 75 S. Manheim Blvd.
New Paltz, NY 12561-2443



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy

# This Page Left Blank Intentionally



ISSN: 1543-5962-Printed Copy ISSN: 1941-6679-On-line Copy