THE AFFORDANCES OF SOCIAL TECHNOLOGY: A BPM PERSPECTIVE

Research-in-Progress

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Abstract

Increasingly, organizations are looking to employ Social Technology (ST) to enhance their capability with Business Process Improvement (BPI). However, little is known about how the characteristics or qualities of ST actually influence an organizations' capability at Business Process Improvement (BPI). This paper discusses the potential role of ST in process improvement by presenting an a-priory model derived by an investigation of extant research. First, the qualities of social technology that potentially support high level action possibilities related to BPI are presented (we refer to these as affordances), next these affordances are mapped to the De Bruin (2009) BPM Maturity model as a first step to understanding how ST influences BPI. This work is expected to contribute to our knowledge and understanding of the relationship between ST and BPI, and will extend existing theory on Business Process Management capability and maturity.

Keywords: Business Process Management, social technology, affordance, literature review
Introduction

Social BPM can broadly be defined as the embedding of Social Technology (ST) within business process management (BPM) initiatives. It is recognised that the inclusion of social technology to BPM programs can “extend the reach and impact of process improvement efforts” (Gottanka and Meyer 2012, p94) and “offers new possibilities for a more effective and flexible design of business processes” (Erol et al. 2010), p1. The potential collaboration and communication benefits of information technology both within and outside of the organisation are widely understood (Abbate and Coppolino 2010) (see section titled 'Social Technology Affordances and Process Improvement Capability’). According to Zammuto et al., ((2007), p753) the benefits of information technology (such as social technology) can be most realized when an organization recognizes IT’s abilities (what can be done – a.k.a ‘affordances’) and conceptualises how it and people can be “woven together”.

This research-in-progress investigates existing literature to understand how the affordances of social technology support the capabilities required for an organization’s business process improvement efforts. Kaplan and Haenlein ((2010), p61) define social technology as a “group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content”. As defined by McLoughlin and Lee ((2007), p666), “an affordance is a "can do" statement that does not have to be predefined by a particular functionality”. For example, “blogging entails typing and editing posts, which are not affordances, but which enable the affordances of idea sharing and interaction” (McLoughlin and Lee 2007), p666). This paper identifies how the affordances of social technology relate to Business Process Improvement (BPI) capabilities; using the theory of Business Process Management (BPM) Maturity and Progression (De Bruin 2009) (see next section) as a guide to BPM capabilities. These findings are then presented in the form of an a-priori model of how social technology affordances influence BPI capability.

The various social technology platforms currently available can be characterised by their respective features and functionality. However it is not the intent of this research to classify these attributes but rather to identify and investigate the affordances of this technology. Social technology can be characterised by a number of affordances which have driven the rapid adoption of this medium in recent years. As positioned by Gibson (1977), the concept of an affordance relates to the “perceptual cues of an environment or object that indicate possibilities for action” (Lübke 2011), p2. This perspective of affordances has been a topic of discussion in the field of computer-mediated communication (Bradner 2001) and recently in the field of social media research by Hogan and Quan-Haase (2010) and Tay and Allen (2011), according to Yousif (2012). As presented in Treem & Leonardi (2012), the literature purports that social technology may support communication practices that are different from what traditional technology such as email and intranets can do (Grudin 2006; McAfee 2006; Steinhuser et al. 2011). And predictions are that by 2013 organisations will spend in excess of $4.6 billion annually on enterprise social technology (Young et al. 2008). Thus, a deep(er) understanding of the affordances of social technology is important as “it helps to explain why, in some cases, people use the same technology differently and why, in other cases, people put the same technology to similar uses and change their communication and work practices in equivalent ways” (Treem and Leonardi 2012, p5). In the context of this research-in-progress, taking an affordance approach allows the research to be agnostic to a particular feature of a technology (Leonardi 2011).

“Although social software is used widely for business support, its relationship with Business Process Management has not been analysed” (Erol, et al., (2010), p1). Further, the current “top down” approach to BPM “neglects the contribution of individual employees, whose skills, experiences and knowledge influence the value added through a business process significantly” (Balzert et al. 2012), p3642). It has been recognised that internal and external organisational collaboration is a critical success factor for business process change (Niehaves and Henser 2011; Niehaves and Plattfaut 2011). And as BPM practices mature, the discipline is looking for more collaborative approaches to involve all types of stakeholders in the improvement of organisational processes (Martinho and Rito-Silva 2011). The question now remains; how to effectively leverage these stakeholder networks to extend the capabilities of the organisation for process improvement (Niehaves and Henser 2011; Rosemann and De Bruin 2005; Rosemann et al. 2006). These gaps are the key drivers of this study. This research aims to address this gap by investigating the role of social technology in process improvement initiatives. This research does not investigate the more
technical aspects or functions required to facilitate this nor how social technology may be embedded within process execution. Rather the intent of the study is to understand how social technology affordances relate to the capabilities required for process improvement initiatives. The governing managerial question driving this study is: *What is the role of Social Technology in Business Process Improvement?* To answer this, the following two research questions will be explored:

1. What social technology affordances can be used to leverage the capabilities required for business process improvement?

2. What is the relationship between these social technology affordances and BPI capability?

The specified unit of analysis for this study is a selected ‘process improvement initiative’ with known project objectives and identified participants. By addressing the above questions we will develop a theoretically guided understanding of the BPI capabilities that are now required by organisations which utilise social technology in process improvement activities. Of particular interest is an understanding of how the perceived affordances of social technology relate to the capabilities required for process improvement and determine the value of this relationship. Empirical evidence of this relationship will be sought through the application of a case based research approach whereby affordances derived inductively from the literature are deductively positioned against the theory of BPM Progression and Maturity (De Bruin 2009).

This paper is structured as follows. The next section introduces the theoretical perspectives of this research and positions the capabilities required for successful process improvement within an organisation. The following section identifies the emerging affordances of social technology (as derived from literature by the research team) and offers definitions of this concept in relation to the organisational perspective. The final section briefly discusses how there may be a relationship between the identified capabilities and the perceived affordances to be leveraged for improved process outcomes. This paper will conclude with a discussion of the theoretical and practical contributions of this in-progress research, outlining perceived limitations (and what has been designed to address these) and future directions.

**Theoretical Foundations – BPM Theory on Maturity and Progression**

To investigate the relationship between Social Technology and Business Process Improvement, this research has selected De Bruin’s (2009) BPM Maturity and Progression framework as a guide to the BPM capabilities required for successful process improvement initiatives (which may incorporate social technology). These process improvement capabilities have been defined as the “the ability of an organization to perform a coordinated set of tasks for the purpose of achieving a particular end result” ((Ortbach et al. 2012), p4288). And Business Process Management capabilities “reflect the accumulated knowledge, skills, and experience of the BPM group as well as available technological capacities to successfully deliver the individual BPM service” ((Rosemann 2010), p2).

The theory of BPM Maturity and Progression (De Bruin 2009) positions the six key factors of strategic alignment, governance, methods, information technology, people, and culture (see right side of Figure 1) to “provide an important starting point for the identification of BPM priorities and a corresponding roadmap for BPM implementation and evolution” ((Rosemann 2010), p4). Each of these critical success factors offers five capability areas (thirty in total) which support BPM as an organisational capability (Rosemann and Brocke 2010a).

**Identification of the Affordances of Social Technology**

Following the approach of Bandara et al., (2011), a systematic and comprehensive literature review was undertaken to gain a clear understanding of the social technology affordances relevant to process improvement. The aim was to investigate the affordances of social technology across a broad range of literature. First, relevant literature sources were identified, then a search strategy was implemented that catered for this multidisciplinary field. By its very nature, social technology is a cross-disciplinary phenomenon which requires the researcher to broadly investigate all relevant sources across various domains of knowledge. As discussions on the affordances of social technology are not limited to a
particular domain of research, the approach taken with this literature review was to search databases, conference proceedings and journal articles using pre-defined search terms (Bandara et al. 2011). This was conducted broadly at a high level including the use of the Web of Knowledge (Thomson Reuters), ScienceDirect (Elsevier) and Google Scholar. Also of relevance to this research is an understanding of the notion of affordances from a business process improvement perspective. As BPM traditionally resides with the Information Systems domain, high quality, peer reviewed sources were also reviewed. In this instance the IS Senior Scholars basket of 8 journals\(^1\) were targeted as well as other selected sources of information including Gartner.com, Forrester.com and various industry whitepapers.

The search strategy determined a predefined set of keywords to be applied within the sources identified in the previous section. It was recognised that this field of research is novel and emergent by nature, hence, a degree of flexibility was introduced to ensure the capture of not only literature which focused primarily on the research topic but also secondary papers less focused but discussing the topic amongst other concepts, and still informative to the investigation (Bandara et al. 2011); this ensured a more comprehensive review of the literature relevant to this study. Some examples of the search terms applied include (“social technology” AND affordance) OR (“social media” AND affordance) OR (“social BPM” AND affordance) amongst a number of other combinations of defined keywords. The resultant set of collated literature was then subject to backward and forward searching as suggested by Levy and Ellis (2006), whereby the references of the initial pool of literature were reviewed and then the citations of this initial pool identified to aid in the identification of related or more recent publications in the domain of interest (Levy and Ellis 2006).

**Social Technology Affordances and Process Improvement Capability**

The literature has discussed how the affordances of IT may be used as an enabler to leverage capabilities useful for business process improvement (Akkermans and van Helden 2002; Fiedler et al. 1995; Gasson 2006; Newman and Zhao 2008; Niehaves and Plattfaut 2011; Tarafdar and Gordon 2007). There exist clear relationships between several specific affordances (e.g. participation; transparency) and BPM success factors (e.g. information technology; people). Other affordances (e.g. emergence; connectivity) appear less understood and it is the intent of this study to clarify these relationships. Building upon the work of Bradley (2009), and supported by extant literature, each of the affordances identified to date are now presented and discussed in terms of their potential relationship to business process improvement.

**Participation**

A key affordance of information technology such as social technology is that it provides an “architecture of participation” ((Barsky and Purdon 2006), p65) whereby participants generate and share digital artefacts. This affordance of participation utilises the concepts of “co-creation” and “users add value” ((Lee and McLoughlin 2008), p2). Participation also supports an organisation’s ability to surface its untapped innovation capability (Abbate and Coppolino 2010) and harness the “wisdom of the crowds” ((Surowiecki 2004), p319). As proposed by Bradley (2009) social technology is an enabler for this affordance of participation, and an organisation benefits from the network effort whereby participation through mass collaboration drives exponential value. From a process improvement perspective, participation increases the understanding and adoption of a process by the wider stakeholder community (Brambilla et al. 2012b) and helps to capture the collective intelligence of the organisation (Erol et al. 2010).

**Collective Effort**

Every Social technology supports “collaboration activities in a shared context” ((Abbate and Coppolino 2010), p5). This concept of “collective creativity” as put forward by Helms et al., ((2012), p2), refers to the crowd-sourcing of solutions to specific problems or issues and capturing the collective intelligence (Lee and McLoughlin 2008) of the organisation (Erol et al. 2010). It has been recognised that internal and

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\(^1\) Senior Scholars’ Basket of Journals http://start.aisnet.org/
external organisational collaboration is a critical success factor for business process change (Niehaves and Henser 2011; Niehaves and Plattfaut 2011). This notion of stakeholders collaborating (McLoughlin and Lee 2007) as a collective on content rather than as individuals is an affordance of social technology which differentiates it from traditional broadcast media such as email and filesharing (Bradley 2009).

From a process perspective there are benefits for using social technology for internal and external stakeholder collaboration (Abbate and Coppolino 2010) as the use of social technology enables collaboration and knowledge exchange regardless of geographic location, benefiting from collective decision helping to “improve the effectiveness and efficiency of BPM initiatives” ((Mendling et al. 2012; Scheer and Klueckmann 2009), p18). Further, It has been recognised by vom Brocke et al., ((2011), p397), that social technology “can be used to support the design, execution, and management of business processes” and provides the ability to capture the affordance of the “collective creativity of consumers” globally ((Helms et al. 2012), p2).

**Transparency**

Social technology offers the affordance of transparency where process stakeholder contributions become visible. This concept of transparency also underpins the affordances of participation, collaboration and emergence as visibility of contribution allows the community to self moderate and progress shared initiatives (Bradley 2009). An increase in process transparency and intent through the use of social technology may also provide the opportunity to collect input for process improvement (Brambilla et al. 2011). The affordance of transparency will also address the recognised issue of the “model-reality-divide”, mitigate organisational exclusion and lower the threshold to stakeholder participation (Erol et al. 2010), p3). Brambilla, Fraternali, & Ruiz ((2012a), p223) state the goal of transparency is to make the “decision procedures internal to the process more visible to the affected stakeholders”. Treem & Leonardi (2012) have also identified the affordance of visibility (transparency) as relevant to organisational processes. The affordance of transparency creates a shared view of the connection between strategy and operational process, a prerequisite for successful implementation of that strategy (Balzert et al. 2012).

**Independence**

Independence supports the notion of egalitarian contributions so that participants can contribute without the coordination of other participants and regardless of physical location (Bradley 2009) or organisational boundaries (Lee and McLoughlin 2008). This affordance supports independent contribution over time, “providing a distinct advantage to the existing document-based method where workers modify the content of previous contributors” (Treem and Leonardi 2012).

**Persistence**

The concept of digital persistence (Lee and McLoughlin 2008) is supported by Abbate & Coppolino ((2010), p5) who state that social technologies can be a driver of innovation because they “transform episodic and one-way interaction in a persistent and frequent dialogue improving the speed, cost and quality of contacts”. The capacity for social technology to retain, share and augment contextualized information is an affordance that BPI will benefit from as all historical process model changes are retained (Erol et al. 2010; Gottanka and Meyer 2012).

**Emergence**

The social technology affordance of emergence of previously unidentified expertise, informal organisational structures or work processes (Bradley 2009), is also of major importance. Identified in a study by Muller (2007a, 2007b), the introduction of an organisational social technology (in this case a social networking system), can support the emergence of a community of practice and “create pools of knowledge”. Leveraging off digital communities of practice may support divergent thinking and aid process improvement activities.
Connectivity

Finally, the affordance of connectivity identified by (McLoughlin and Lee 2007) supports the tasks of collaborative discovery; content creation; and information aggregation. This notion of connectivity may also “supplement existing relationships, and help build a greater sense of community” ((Treem and Leonardi 2012), p31). In addition to the maturing of the above, the Researchers believe that further affordances will be discovered as the study progresses.

Towards a Conceptual Model of ST Affordances for BPI

This research re-considers the BPI capabilities required for process improvement initiatives when leveraging the affordances of social technology. A comprehensive review of the literature provides evidence that there exists a potential relationship between the accepted capabilities and the social technology affordances deemed relevant in this domain. It is the unique relationship of these affordances to the identified BPI capability areas that this research will investigate through development of a conceptual model and in-depth case study analysis. As discussed, the BPM theory on maturity and progression (De Bruin 2009) has been applied as a guiding Theoretical framework to leverage previous knowledge and inform the approach to this research (Walsham 1995). The following a-priori model (Figure 1) visualises the potential relationships between BPM Capabilities and the identified affordances of social technology.

![Figure 1. A-Priori Model of Social Technology Affordances and BPI Capability](image)

The potential relationship of these social technology affordances will now be briefly discussed in the context of the six BPM success factors presented in Figure 1.

**Strategic Alignment**

The BPM capabilities that fall under this critical success factor support “the continual tight linkage of organisational priorities and enterprise processes enabling the achievement of business goals” ((De Bruin and Rosemann 2006), p4). This capability factor “should target the assessment of a process in terms of it’s alignment to corporate strategy and mission” and pertain to the relevant capabilities required to understand “organizational strategy and the way it can be operationalized for various processes” ((Rosemann 2010), p4). A key challenge though is the alignment of the strategic direction of
the organisation with core business processes (Balzert et al. 2012). The affordances of transparency and participation may be relevant to this factor as a shared view of the connection between strategy and operational process is a prerequisite for successful implementation of that strategy (Balzert et al. 2012).

**Governance**

This set of capabilities “will typically involve a close collaboration with Human Resource Management” ((Rosemann 2010), p5) and “focus on the design of decision making and reward processes” ((Rosemann and Brocke 2010b), p7). Increased transparency on the roles and responsibilities and decision making tasks common to governance capabilities may support the effectiveness of process improvement initiatives.

**Methods**

The BPM capabilities required to support this success factor consider “training in methodology, development of procedural models, methodological upgrades, and the provision of conventions and advanced practices” ((Rosemann 2010), p4). This capability area may draw benefit from several social technology affordances such as participation, collective effort and independence.

**Information Technology**

The capabilities covered here include those that support “the software, hardware and information systems that enable and support process activities” ((Rosemann and Brocke 2010b), p12). One key affordance that this capability area may benefit from the most is persistence. The capacity for social technology to retain, share and augment contextualized information is an affordance that this BPM capability will draw benefit.

**People**

This key factor “is defined as individuals and groups who continually enhance and apply their process skills and knowledge in order to improve business performance” ((Rosemann and Brocke 2010b), p8). Impacted by affordances such as participation, collective effort, transparency, independence and connectivity it is likely this factor will be most impacted from this relationship. The involvement of people from both inside and outside of the organisation is seen as a BPM initiative success factor (Hammer and Champy 1993). These internal organisational stakeholders include senior management (Rosemann et al. 2006), middle management and other staff (Becker et al. 2010).

**Culture**

This factor pertains to the “collective values and beliefs that shape process-related attitudes and behaviour to improve business performance” ((Rosemann and Brocke 2010b), p14). For the successful leveraging of social technology affordances, organisations must view this concept holistically and understand how the relationship changes the way employees operate (Murphy and Salomone 2013). Finally, McAfee (2006) identifies the importance of a supportive organisational culture as a key success factor of social technology adoption (Murphy and Salomone 2013). The affordances of participation, collective effort, transparency and emergence appear to be the most influential here.

**Way Forward and Conclusion**

The a-priori model (Figure 1) will be evolved and confirmed through the application of the multiple case study method, following the approach offered by Yin (2009). This will further determine the perceived relationships and identify any additional BPI capability areas or affordances involved in process improvement initiatives. In this instance the multiple case study method was identified as appropriate, as the research is exploratory with the aim of theory building and the development of a conceptual model.
(Benbasat et al. 1987). This pa-priori model will continue to evolve as the research progresses and the proposed construct relationships emerge from the data.

The Case Study research method was identified as the most appropriate to support the development of this a-priori model of social technology affordances and business process improvement capability, and the theorizing which supports this model. The case study method was selected as its goal is to “expand and generalize theories” (Yin, 2009). Further, the case study method has been used on other IS capability studies to establish theory driven conceptual models (Cragg 2011; McLaren, 2011). As the domain of research under investigation is emergent and not yet well understood, an exploratory and explanatory approach to data collection via the case study research method (Yin, 2009) was therefore identified as appropriate. Further, as asserted by Benbasat et al., (1987), “Case research is particularly appropriate for certain types of problems: those in which research and theory are in their early formative stages.” Multiple case studies are preferred where there is intent to build or test a theory (Gable, 1994) and for “increasing confidence in the robustness of the theory” (Tellis, 1997). The research questions are concerned with what social technology affordances can be used to leverage BPI capability and what is the nature of this relationship. These exploratory “what” questions seek to explore the phenomenon under investigation and support the development of “hypothesis and propositions for further inquiry” (Yin, 2009). According to Yin (2009) these exploratory questions are best answered using case studies as this research involves observing a contemporary event where there is minimal control over the behaviour of participants.

The case studies will be designed in accordance with established understanding and guidelines (Gable, 1994; Walsham, 1995) to ensure rigor and repeatability with the development and deployment of the approach. An initial exploratory pilot case study will be used to inform a protocol for further multiple case studies which will ensure the research findings are more generalisable and replicable across several real-world contexts (Yin, 2009). This will also eliminate any single case bias therefore enhancing the scientific rigor of the study. Semi-structured interviews (Patton, 2002) will be the most significant data collection approach selected by this research. This allows for flexibility to explore emerging themes rather than relying upon predetermined concepts, though is still guided by the initial interview questions. Other evidence derived from archival analysis and participant observation will augment this interview data.

The potential implications of this research will be a contribution to knowledge of the influence of social technology upon the practice of BPM. Further, an understanding of this relationship will aid in the selection of an appropriate technology for inclusion within the BPM lifecycle. The next phase of this research will be the deployment of the case study protocol followed by subsequent data collection and analysis. The final outcome of this study will be the positioning of the BPM theory on maturity and progression (De Bruin 2009) against the confirmed affordances of social technology.

References


