Business Process Management in the Digital Age

by

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Digitalization is a game-changer for BPM

Business Process Management (BPM) strives for the improvement of how companies conduct cross-functional work and ensures that company-wide capabilities are available that enable the effective management of the entire business process lifecycle (vom Brocke and Rosemann 2015). Over the last decades, BPM had a strong inward-driven focus characterized by the sound identification, analysis, and solving of process problems related to waste, variation, or cost. As a consequence, a large body of knowledge and methods such as Lean Management, Six Sigma, or workflow management has emerged. However, the uptake of digital technologies that not only focus on process automation, but also enable entirely new business processes means that the current set of BPM approaches is no longer sufficient.

The penetration of economy and society by digital technologies is referred to as digitalization, a global phenomenon leading to an opportunity-rich, hyper-connected, fast-moving, and highly competitive environment (Gimpel and Röglinger 2015). Digital technologies substantially affect our private lives and work practices (Gartner 2016). Consider the following examples: Social and mobile technologies (e.g., social media and social collaboration platforms) revolutionize how people communicate and emancipate work from time and location. Equipping physical objects with sensors, actuators, computing power, and connectivity, the Internet of Things boosts the fusion of the physical and digital world. Combined with the potential of Blockchain-empowered solutions, it enables novel value exchanges among individuals, businesses, and smart things, reduces the distance between customers and companies, and grants access to so far unexplored data sources. Further, data analytics – including the latest advances in cognitive technologies – enable capitalizing on data in a diagnostic, predictive, and prescriptive manner, building the foundation of data-driven business models, the automation of unstructured tasks, and natural interaction between humans and machines (e.g., social robotics). Finally, 3D/4D printing disrupts supply chains and value networks by enabling highly decentral, delayed production facilities.

As digital technologies enable so far unimaginable business processes, digitalization is a true game-changer for BPM, posing manifold challenges and opportunities. To name a few examples: smart things are becoming full-fledged actors in business processes, leading to new human-robot-interactions. Business processes are becoming data-intensive such that complex and real-time data assessments determine decision-making along business processes. Crowdsourcing and crowdsolving facilitate resource engagements, allowing for the identification of new or the rapid scaling of external resources.

In an environment characterized by advanced process automation capabilities and new digital process design opportunities, a purely reactive and problem-driven approach to BPM is no longer sufficient. Instead, BPM needs to become ambidextrous, i.e., it must leverage digital technologies for both streamlining and innovating business processes. BPM should leverage data for analytical purposes, including the exploration of unstructured and non-process (context) data. It should enable organizations to deal with unpredictable, fragmented, knowledge-intensive, and cross-organizational business processes. With the uptake of digitalization, BPM must continue emphasizing the people perspective to ensure an optimized augmentation for employees and customers in the future of work and consumption (Davenport and Kirby 2016).

Inspired by the challenges and opportunities associated with digital technologies, we were motivated to investigate the question how BPM needs to be re-conceptualized to enable effective and efficient work in the digital age. In doing do, we acted on the assumption that a lack of BPM renewal leads to a rapidly declining relevance of BPM as it would be unable to harvest the rich design space available in the digital age.

To answer this question, we conducted a global Delphi study with 30 carefully selected BPM experts from academia and industry. This research included an anonymous multi-round consensus-seeking method. The essential outcome of this study is a new framework including BPM capabilities regarded as vital in the digital age.

BPM capabilities in the digital age

Our BPM capability framework (Figure 1) includes 30 capabilities structured along the established core elements of BPM (i.e., strategic alignment, governance, methods, IT, people, and culture) (de Bruin and Rosemann 2007). For our purposes, we merged 'methods' and 'IT', as all methods can be supported by IT in the digital age.

Strategic Alignment	Governance	Methods / Information Technology		People	Culture
Strategic BPM Alignment	Contextual BPM Governance	Process Context Management	Multi-purpose Process Design	BPM and Process Literacy	Process Centricity
Strategic Process Alignment	Contextual Process Governance	Process Compliance Management	Advanced Process Automation	Data Literacy	Evidence Centricity
Process Positioning	Process Architecture Governance	Process Architecture Management	Adaptive Process Execution	Innovation Literacy	Change Centricity
Process Customer and Stakeholder Alignment	Process Data Governance	Process Data Analytics	Agile Process Improvement	Customer Literacy	Customer Centricity
Process Portfolio Management	Roles and Responsibilities	BPM Platform Integration	Transformational Process Improvement	Digital Literacy	Employee Centricity

Figure 1: Framework of BPM capabilities in the digital age

Strategic Alignment

Strategic alignment refers to the continual alignment of organizational priorities and processes, enabling the achievement of business goals. In the digital age, strategic alignment must strongly focus on the value proposition of business processes and BPM. It must ensure that the benefits associated with business processes and BPM are realized in line with the expectations of re-conditioned, digitally savvy customers, and other stakeholders. Transparency is needed about how processes are positioned within the enterprise architecture and inter-organizational value networks. This allows for prioritizing processes in line with their need for improvement and their contribution to corporate purposes.

Governance

Governance establishes relevant and transparent accountability and decision-making processes to align rewards and guide actions. In the digital age, BPM and process governance must be highly contextual. On the one hand, this means that BPM methods and tools must be selected and customized in line with organizational contexts. On the other hand, organizations must be able to manage multiple process types and contexts simultaneously via appropriate decision-making, compliance, security, change management, and performance management concepts. Governance must define guidelines for process architecture management and process data analytics. Process data governance will be highly important for capitalizing on structured and unstructured as well as process and non-process data. In the digital age, roles and responsibilities must particularly account for new working and collaboration models as well as for new process participants (e.g., crowd workers, robots, or smart things)

Methods / Information Technology

Methods are the approaches and techniques that support and enable consistent process actions and outcomes. IT refers to the software, hardware, and information systems that enable and support business processes. Heavily IT-supported methods are needed in all BPM lifecycle phases. In the digital age, process design should fit multiple purposes (e.g., customer-centric, risk-aware, or flexibility-aware processes) and enable mass-personalized processes. In line with the importance of contextual process and BPM governance, process context management evolves into an essential capability. The same holds for process data analytics and BPM platform integration. Process execution must support the dynamic re-design of business processes as well as the handling of emerging processes and processes where no process models are available. Process improvement must support an agile and a transformational mode. The agile mode, for example, must enable the intuitive and rapid redesign of business processes as well as the fast data-driven assessment of these processes based on performance data and customer feedback. Process automation must tackle unstructured tasks and enable new forms of human-machine interaction by leveraging opportunities of digital technologies such as cognitive automation, social robotics, and smart devices.

People

People are the individuals and groups who continually enhance and apply their process-related expertise and knowledge. We identified five people-related capabilities relevant in the digital age. First, employees still require substantial knowledge about BPM methods and tools as well as about relevant process domains. To thrive in the digital age, employees must be familiar with data analytics, data privacy, and data security techniques. This also holds true for innovation techniques (e.g., design thinking), customer

analysis techniques (e.g., customer journey mapping) as well as for knowledge about the mechanics of the digital economy and digital business models.

Culture
Culture comprises the collective values and beliefs that shape process-related attitudes and behaviors. In the digital age, new process values and beliefs are required. We found that it is still necessary to establish business processes as an essential topic of corporate management and to foster cross-functional thinking. In line with the access to unlimited data and the uptake of data analysis techniques, BPM requires the commitment to ground important decisions on data as opposed to managers' gut feeling. BPM in the digital age also requires the commitment to continuously scrutinize existing, even long-standing, business processes and to learn from failure in a fast and iterative manner. In the digital age, BPM must actively involve employees in process decisions, account for the effects of these decisions on employees' work lives, take customer feedback seriously, and grant employees the sovereignty to make self-dependent decisions if they encounter unprecedented challenges.

Six overarching themes characterize BPM in the digital age

From a bird's eye perspective, our BPM capability framework encompasses traditional and novel capabilities, meaning that current BPM capabilities do not necessarily become obsolete in the digital age. In fact, we found that many capabilities will still be relevant in the future, but need to be enhanced. For example, BPM and business processes still need to be aligned with corporate objectives and purposes. Further, method and IT support are in high need for all BPM lifecycle phases, and business processes still need to be established as central unit of analysis in corporate management.

As for novel capabilities, process governance must become contextual, meaning that organizations must support various processes types and contexts. Likewise, BPM itself needs to become contextual, meaning that BPM methods and tools must be configured in line with the process types and contexts to be supported. Consequently, it is crucial that organizational contexts are continuously monitored. Further, architectures and data will play a central role. Architectures must account for process dependencies as well as for inter-organizational processes and value networks. Data must be leveraged at design and run time for analytical and compliance checking purposes, leveraging predictive techniques wherever reasonable. As a final example, BPM must strive for the next level of process automation. Digital technologies should not only be employed for automating well-structured tasks, but also to tackle unstructured tasks together with employees and customers.

In a nutshell: In the digital age, BPM will still deal with overseeing how corporate work is performed and with the improvement of business processes (Dumas et al. 2013). Nevertheless, to serve its purpose of enabling efficient and effective work in the digital age, BPM must further exploit established capabilities and explore novel ones. To do so, BPM must embrace six overarching themes across all capabilities: data, humans, opportunities, networks, context, and change (Figure 2).
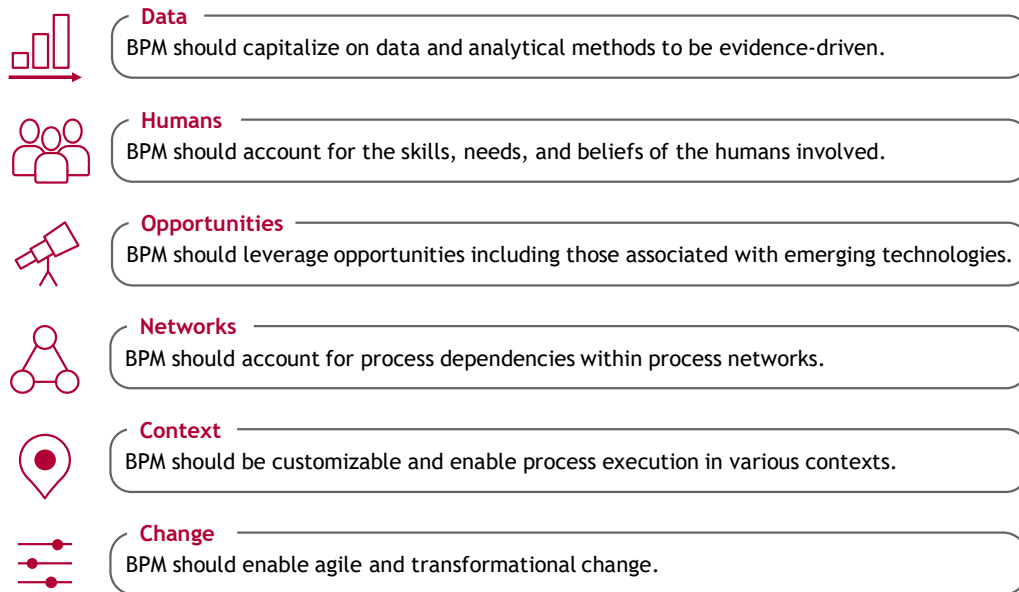
Data

BPM should capitalize on data and analytical methods to be evidence-driven.

Humans

BPM should account for the skills, needs, and beliefs of the humans involved.

Opportunities

BPM should leverage opportunities including those associated with emerging technologies.

Networks

BPM should account for process dependencies within process networks.

Context

BPM should be customizable and enable process execution in various contexts.

Change

BPM should enable agile and transformational change.

Figure 2: Overarching themes of BPM in the digital age

Please do not hesitate to contact us in case you require more information about the capabilities included in our framework. The results of our research will soon be published at http://www.digital-bpm.com.

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