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How the COVID-19 pandemic can stimulate more radical business process improvements: Using the metaphor of a tree

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The COVID-19 pandemic has forced organizations and employees worldwide to drastically rethink their way of working. While drastic process changes normally tend to fail or are challenged by employee resistance, the COVID-19 pandemic has reduced this impediment so that organizations actually experience how alternative (i.e., more simple and digitalized) working alternatives can look like. This opinion paper calls for more business process management (BPM) ambidexterity in organizations, so that the alternatives experienced during COVID-19 can be evaluated and remain after the pandemic. For this purpose, a BPM tree is proposed to outweigh incremental process improvements from more radical ones, in order for organizations to exploit good practices but also to better explore emerging opportunities.

1 | INTRODUCTION

Many organizations operate in markets that put pressure on them to compete and remain sustainable (Eisenhardt & Martin, 2000; Mithas, Tafti, & Mitchell, 2013), not only financially but also socially and environmentally (Elkington, 1997; Seidel, Recker, & vom Brocke, 2013). Such market situations require organizations to explore new opportunities (Kane, Palmer, Philips, & Kiron, 2015), among others triggered by new technologies such as block chains, Internet of Things (IoT), robotics or Artificial Intelligence (AI) (Karabegović, Karabegović, Mahmić, & Husak, 2020; Mendling et al., 2018), and which allow for a reconsideration of their business processes in a more radical or disruptive sense (Martinez, 2019; Pilav-Velić & Marjanovic, 2016).

Despite such market pressure and the related IT opportunities, organizations seem to fear the unknown and face employee resistance, which prevent them from realizing the endeavors for drastic business process innovations (Hausberg, Hülsdau, Moysidou, & Teuteberg, 2017; Talukder, 2019). The presence of market pressure and the related IT opportunities are, however, not novel as organizations already experienced similar stimuli in the 1980s–1990s (i.e., computerization) and in the 2000s (e.g., e-commerce, e-business) (Davenport, 1993; Hammer & Champy, 2003), but also with a similar problem of employee resistance (Willcocks & Smith, 1995).

This article intends to explain in layman's terms how a scientifically new paradigm can be added to the domain of Business Process Management (BPM) (Dumas, a Rosa, Mendling, & Reijers, 2018), as an attempt to let radical business process improvements be better accepted by managers and practitioners. For this purpose, we use ambidexterity theory to gain insight into the seemingly conflicting but supplementing forces for continuous process improvements (i.e., BPM exploitation) and digital process innovation (i.e., BPM exploration). The metaphor of a tree is used to emphasize a natural growth toward process performance. The paper presents a metaphorical model for the BPM discipline to show its organic structure and its connections with an organization's environment. Such a visual image can be used for consultancy reasons, and help communicate to an organization's higher management and board members how BPM ambidexterity can be applied in practice. Our major theoretical contribution is adding the novel perspective of process exploration to the BPM discourse.

The remainder positions the impact of the COVID-19 pandemic on organizations in Section 2, as a business setting in which employee resistance is exceptionally neutralized. Section 3 introduces the notion of BPM ambidexterity theory to add an explorative perspective to the traditional BPM domain, before Section 4 describes the research streams and methods underlying the paper. Section 5 continues by extending the idea of BPM ambidexterity toward a BPM tree that symbolizes an organizational ecosystem by also considering the organization's business context and BPM's performance outcomes. Section 6 provides practical advice on how the BPM tree can be used, and positions practical calls to action for managers and BPM-oriented practitioners. Afterward, Section 7 makes a translation to the COVID-19 pandemic. We conclude in Section 8.

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2 | COVID-19 PANDEMIC HAS TRIGGERED A NOVEL BUSINESS SETTING

The year 2020 was characterized by international lockdowns due to the health dangers caused by COVID-19. Economies worldwide have been drastically impacted, with many employees facing (temporary) job losses and customers moving to online buying behaviors. Also managers have experienced a sense of urgency to deviate from bureaucratic procedures due to the unforeseen circumstances, in an attempt to keep their organizations running. Serious as the situation is, this pandemic offers an interesting business climate to investigate process innovations more deeply.

More specifically, the COVID-19 pandemic has reduced the impediment of resistance by a mandatory drastic change, which requires fully grabbing the benefits of IT. The latter can be not only new information systems (e.g., based on IoT to keep supply chains running with fewer human interventions) but also more ingrained communication tools and social media (e.g., MS Teams, Google Meet, Zoom), which were previously not necessarily used with their full professional potential. COVID-19 thus serves as a global event that has enabled rapid business transformations across all sectors and organization sizes.

In this opinion paper, we show how organizations can learn from their COVID-19 experience to hold on to success stories related to their required business process improvements and to learn for the future in order to pay more attention to the social and environmental balance within the organization (e.g., to achieve a better work-life balance and to reduce CO_2 due to fewer traffic jams). We therefore rely on the BPM discipline (i.e., which advises organizations to manage and improve their way of working) within the Information Systems domain (Dumas et al., 2018), and theorize the discipline by means of ambidexterity theory (March, 1991; O'Reilly III & Tushman, 2011).

3 | BPM AMBIDEXTERITY AS A THEORETICAL LENS

According to ambidexterity theory (March, 1991; O'Reilly III & Tushman, 2011), an organization should balance exploitation and exploration which dual approach leads to increased business performance (Chi, Zhao, George, Li, & Zhai, 2017; Prester, Hernaus, Aleksic, & Trkman, 2019). "Exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation. Exploitation includes such things as refinement, choice, production, efficiency, selection, implementation, execution" (March, 1991: p. 71). Hence, O'Reilly III and Tushman (2011) position ambidexterity as an organization's dynamic capability that "embodies a complex set of routines including decentralization, differentiation, targeted integration, and the ability of senior leadership to orchestrate the complex trade-offs that the simultaneous pursuit of exploration and exploitation requires" (p. 6).

Although this theory has been previously applied to different domains, such as IT ambidexterity (Heckman & Maedche, 2018) or knowledge ambidexterity (Cegarra-Navarro, Jimenez-Jimenez, Garcia-Perez, & Delgiudice, 2018; Cegarra-Sánchez, Cegarra-Navarro, Chinnaswamy, & Wensley, 2020), the current study focuses on BPM ambidexterity. More specifically, when translating ambidexterity theory to the BPM discipline, exploitation primarily focuses on continuous process improvements (i.e., more incremental in nature) while exploration facilitates digital process innovations (i.e., more disruptive). Likewise, Kohlborn, Mueller, Poeppelbuss, and Roeglinger (2014), respectively, refer to an inside-out and outside-in process design. Balancing the exploitative and explorative aspects is crucial for BPM ambidexterity, which may also lead to tensions or conflicts regarding convergent and divergent thinking. For instance, balancing efforts are required when outweighing different purposes such as standardization versus agility, following different business trends, or integrating different process variants and different technologies (Kwak, Lee, & Lee, 2020; vom Brocke et al., 2020).

Although ambidexterity theory starts finding its way in the BPM literature (Benner & Tushman, 2003; Rosemann, 2014; vom Brocke et al., 2020), it is still applied in a rather abstract and scholarly way rather than in a concrete and practitioner-oriented way, being less approachable for managers and consequently being less likely to be translated into organizational practices on a large scale. Additionally, since knowledge about digital process innovation and emerging technologies is advancing (Kemsley, 2015; Mendling et al., 2018), the explorative success factors need further investigation (Kerpedzhiev, König, Röglinger, & Rosemann, 2020). This gap will be partly filled by our metaphor of a BPM tree, which grasps the idea of BPM ambidexterity in a visual manner that is more approachable to managers.

4 | UNDERLYING RESEARCH STREAMS AND METHODS

This opinion paper does not intend to strictly follow established research methods as in a typical research paper. Instead, we combine three prior research streams to find further grounding or evidence of the proposed idea of a BPM tree that nourishes an organizational way of working.

The first research stream considers the essential link between BPM and business (process) performance (e.g., in terms of efficiency, effectiveness, and quality). This positive link has been widely accepted in the literature (Bronzo et al., 2013; Dijkman, Lammers, & de Jong, 2015; Kohlbacher & Reijers, 2013; Skrinjar, Bosilj-Vuksic, & Stemberger, 2008). This first stream is underpinned by the resource-based view of the firm (RVB) (Barney, 1991), which postulates that an organization should identify and apply its strategic resources or capabilities to obtain competitive advantage. While business processes need to be managed from this perspective, the knowledge-based theory refines RVB by adding knowledge and the capability to create and utilize knowledge (i.e., knowledge management). Knowledge is considered as being equally important to business processes in order for employees to acquire the required expertise and to coordinate the knowledge bases in the transformation from process inputs to process outputs (Trkman & Desouza, 2012).

Second, the BPM discipline starts benefiting from contingency theory studies (Niehaves, Poeppelbuss, Plattfaut, & Becker, 2014; van Looy & van den Bergh, 2018). This second stream calls for more context-awareness in the BPM discipline (vom Brocke et al., 2014), asserting that business processes rather require customized practices contingent upon an organization's specific business context instead of one golden solution that applies to all organizations (Rosemann, Recker, & Flender, 2008; vom Brocke, Zelt, & Schmiedel, 2016). We particularly rely on the original onion model of (Rosemann et al., 2008) to define a business context, in which the distinction between an external business layer (e.g., sector) and an environmental business layer (e.g., including dynamic factors such as weather but also pandemics) seems especially useful in times of COVID-19.

A third and final research stream deals with the critical success factors (CSFs) for BPM, which have been summarized via a measurement scale development approach (Van Looy, 2020). Although other studies with similar categorizations of BPM-related CSFs exist (Trkman, 2010; vom Brocke & Rosemann, 2010), we illustrate our idea of a BPM tree with the CSFs of (van Looy, de Backer, & Poels, 2014) because this categorization comprehensively covers 69 maturity models in the BPM discipline, is grounded in several management theories and has been turned into a validated and reliable measurement instrument (Van Looy, 2020). In other words, the categorization shown in Table 1 summarizes prior equivalent lists. Moreover, while the CSFs in the BPM literature mainly focus on exploitation (Trkman, 2010; vom Brocke & Rosemann, 2010), the exploitative CSFs of the selected BPM categorization have already been translated into explorative equivalents by means of an expert panel (Van Looy, 2018). Nonetheless, we acknowledge that a similar exercise can be re-done using other lists of BPM-related CSFs than the one presented in Table 1, and this with the same logic.

Table 1 shows the multidisciplinary character of BPM, with clear links to domains such as strategic management, project management, quality management, human resource management, change management, and knowledge management (i.e., all of which may obtain a more agile emphasis when becoming explorative). For instance, Cegarra-Sánchez et al. (2020) showed that exploring involves learning new things and generating new knowledge by being open to novel

TABLE 1 The BPM-related CSFs used in this opinion paper

Highly-performing CSF	Sub dimension	Aspects to be considered
PDCA lifecycle	Plan	Which methods and tools are used for designing a business process?
	Do	Which methods and tools are used for executing a business process?
	Check	Which methods and tools are used for measuring a business process?
	Act	Which methods and tools are used for improving a business process?
Managerial aspects	Process strategy	• Which objectives are set that the business process should achieve? • How are these process objectives linked to the corporate strategy?
	Process-based relationships	How are relationships with the external stakeholders involved in the business process maintained?
	Roles and responsibilities	• Which manager is responsible for the performance of a particular business process and for managing that process throughout its PDCA lifecycle? • If this manager is assisted by a team, who are the team members? • Which responsibilities are included in their (formal) job descriptions?
	Skills, knowledge and training	• Which trainings are organized for the process manager and the assisting team to acquire the skills needed to fulfill their roles? • Which trainings are organized for employees operating in specific business processes? • Which expertise or knowledge is required to fulfill the above-mentioned roles?
Process-oriented culture	Values, attitudes, behaviors	• Which corporate values stimulate employees to think and work in terms of business processes? • How do employees feel about working in terms of business processes? • Which organization-wide actions (e.g., sharing knowledge, best practices, and lessons learned) facilitate working in terms of business processes?
	Human resource appraisals and rewards	How do formal appraisal and reward systems stimulate employees to think and work in terms of business processes?
	Top management commitment	How do top managers show support for thinking and working in terms of business processes?
Process-oriented structure	Organization chart	How does the organogram visually show that business processes cross departments?
	Governance bodies	Which organization-wide roles and bodies (e.g., program manager, knowledge-based center of excellence, start-ups) support working in terms of business processes?

idea and opportunities (such as in a learning organization). In Table 1, such knowledge management aspects are incorporated as a managerial CSFs (e.g., for changing policies accordingly, and stakeholder involvement for cocreation) and as CSFs related to training, behaviors and governance bodies (e.g., for communicating about new applications and procedures via protocols, websites, manuals, blogs, and fora). From this knowledge perspective, managing a business process through an ambidextrous manner entails a learning process for generating new knowledge, among others. Also the strategic management aspects can become ambidextrous by considering alternative business models (e.g., via a business model canvas) (dos Santos, Pádua, Bernardo Junior, & Aredes, 2020).

5 | FROM BPM AMBIDEXTERITY TO A BPM TREE

We elaborate on to the above-mentioned research streams by repositioning the BPM-related exploration-exploitation synergies within ambidexterity theory by means of a metaphorically BPM tree in two step: (a) adding the idea of balancing efforts to the BPM-related CSFs, and (b) turning this balancing idea into the larger ecosystem in which BPM operates (i.e., including a business context and performance outcomes).

As a first step, we extend the work of (Van Looy, 2018) by visualizing the BPM-related CSFs from an ambidexterity perspective. Prior research revealed that the same CSF labels hold for both exploitative and explorative equivalents, albeit with a different interpretation and concretization. In other words, Figure 1 shows how BPM ambidexterity requires organizations to balance the exploitative and explorative aspects per BPM-related CSF (i.e., by exploiting from time to time and by relying on exploration in other times).

In order to illustrate what such a different interpretation can look like for exploitative and explorative equivalents of the same CSF label, Figure 2 presents some examples of aspects that need to be balanced. This balancing idea is crucial from an ambidexterity perspective because some business situations will require more exploitation or exploration for the same business process. This means that incremental process changes can iterate with drastic process changes across the entire lifecycle of the same business process, and that organizations need to offer the infrastructure for both approaches (e.g., traditional BPM suites for continuously resolving process bottlenecks as well as project teams or start-ups for out-of-the-box thinking and exploring opportunities).

Our second step positions this balancing idea within the BPM ecosystem, in which business processes are managed in a contingent way (i.e., by choosing the alternatives per CSF that fit a certain business context) in order to achieve positive performance outcomes. As a result, Figure 3 offers a visual map illustrating a "BPM tree" with generic BPM-related CSFs that apply to both explorative BPM and exploitative BPM.

Particularly:

- The "tree" symbolizes BPM ambidexterity that needs to be strategically balanced to realize the corporate goals and business models. Exploitation means incrementally improving the "tree" (e.g., by trimming, pruning, fertilizing, watering, improving the soil, and growing new branches), while exploration is more radically revamping the

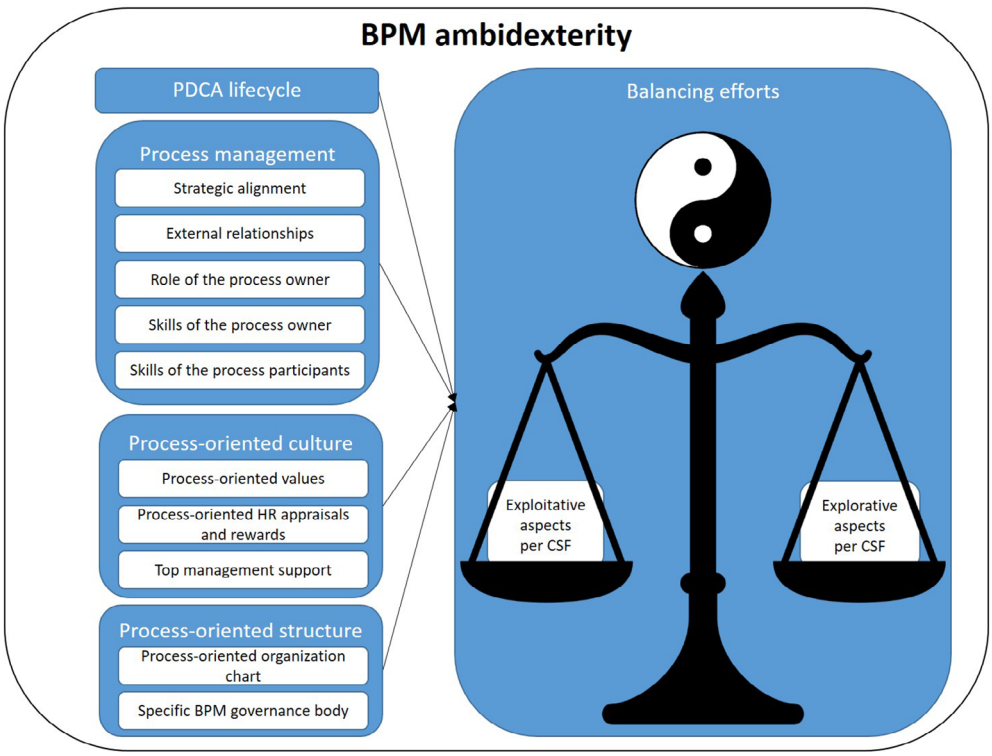

FIGURE 1 A visualization of the BPM ambidexterity theory [Colour figure can be viewed at wileyonlinelibrary.com]

"tree" (e.g., by topping, replanting or redirecting growth). Usually, incremental and radical changes will balance each other over time (e.g., subsequent incremental changes followed by a one-time radical change, that triggers another series of incremental changes).

- The "roots" symbolize the business environment in which organizations operate, as proposed by contingency theory (Niehaves et al., 2014; van Looy & van den Bergh, 2018).
- The "branches" symbolize the behaviors required for the common groups of CSFs (i.e., for both exploitative BPM and explorative BPM).
- The "leaves" symbolize the intermediate outcomes of the BPM-related CSFs.
- The "fruit" of CSFs ultimately symbolize process performance. Hence, the results are "fruits" of the "tree," as expected by RVB

Critical success factors	Exploitative aspects <>	Examples of balancing efforts per CSF	<> Explorative aspects
PDCA lifecycle	• Iterations of entire PDCA cycles • BPM suites with formal process languages • Lean, Six Sigma		• More flexible/agile PDCA cycles • Business case • Experimentation and out-of-the-box thinking
Process management	• Efficiency, effectiveness, quality • Customer thinking • Training on operational processes • Knowledge about operational processes		• Value-driven and long-term thinking • Customer differentiation and co-creation • Self-steering skills and lifelong learning
Process-oriented culture	• Teamwork and excellence • Avoiding failures		• Empowerment and entrepreneurship • Allowing trial-and-error
Process-oriented structure	Process owners with optimization teams formally recognized in the organization chart		Temporary project teams and start-ups

FIGURE 2 Examples of balancing efforts to achieve BPM ambidexterity, derived from (Van Looy, 2018)

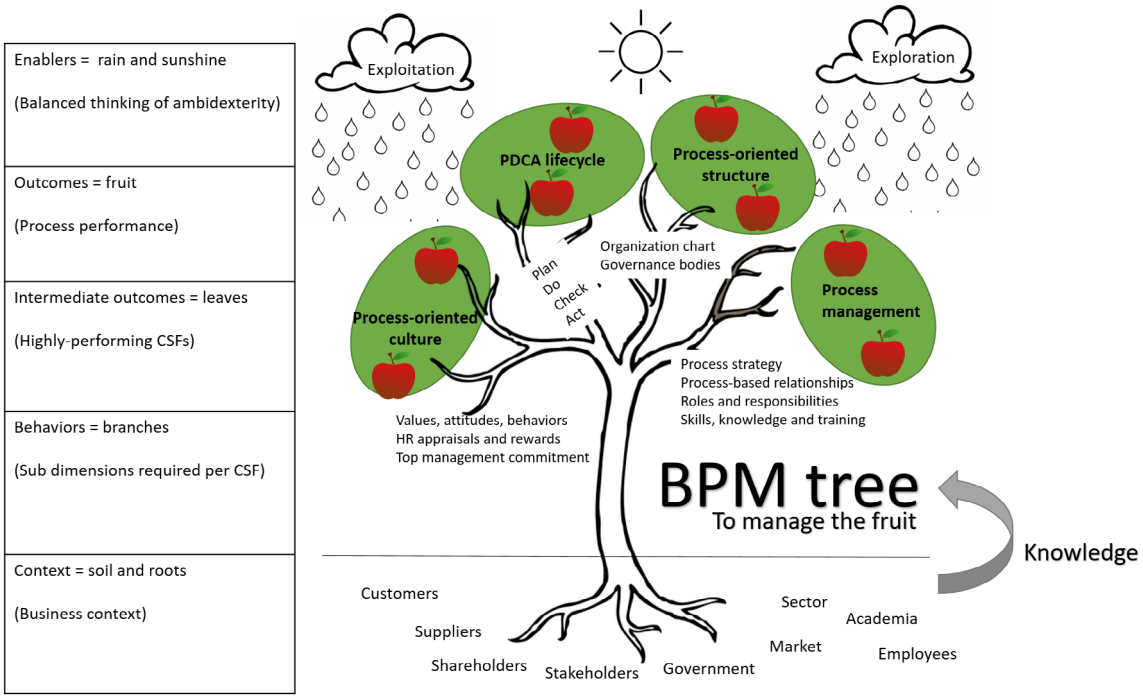

FIGURE 3 The "Business Process Management Tree": an ambidexterity metaphor [Colour figure can be viewed at wileyonlinelibrary.com]

(Barney, 1991) and knowledge-based theory (Cegarra-Sánchez et al., 2020; Trkman & Desouza, 2012).

This metaphor sends a positive image with a nourishing effect: organizations should manage the fruit (i.e., process performance) by applying BPM with exploration and exploitation influences. Typical trade-offs that should be made when balancing exploitation and exploration are related to constraints in resources, budget or time, and to short-term versus long-term strategic visions (Lavie, Stettner, & Tushman, 2010). It is also shown that knowledge is required from the business environment to the BPM tree, in order to make well-informed decisions.

Subsequently, we apply the BPM tree to two concrete situations, namely for BPM exploration and BPM exploitation, respectively.

During the process reengineering wave of the 1980s–1990s, the business context of Western manufacturing organizations was challenged by pressures from the market with increased price competition due to low-wage countries and more demanding customers (Hammer & Champy, 2003). Changing technologies could be used to explore process redesigns instead of just automating existing business processes. The clean slate approach resembles an out-of-the-box thinking technique. However, many reengineering efforts failed unless other BPM-related CSFs (e.g., cultural and structural aspects but also strong relationships with stakeholders and employees) were addressed as well.

On the other hand, when organizations face less stringent market pressures and rather intend to achieve a quality label to convince their customers of the organization's excellence, one could opt for exploitative Lean Six Sigma techniques in order to eliminate nonvalue adding activities (e.g., just-in-time) and by measuring a process' defects per million opportunity (DPMO) based on customer-related critical to qualities (CTQs) (Pepper & Spedding, 2010). Also this initiative should be incorporated into the broader organizational strategy and appropriately managed, including the required training and philosophy of customer excellence.

6 | GENERAL THOUGHTS FOR APPLYING THE BPM TREE IN PRACTICE

This section reflects on the how the BPM tree can be applied in organizations, including practical calls to action.

6.1 | Reaching out to managers and BPM-oriented practitioners

While the BPM tree provides a theoretical grounding from the perspective of ambidexterity theory that helps underpin the BPM discipline any further, the paper's aim is rather to stimulate BPM's practical use. Therefore, we deliberately opted for a visual representation that helps managers and BPM-oriented practitioners (e.g., IT consultants, business analysts, process operators, and system engineers) better grasp the essentials of BPM, including the causal inference toward process performance.

Not only can the BPM tree be used to visually explain the general idea of why BPM is of practical use (e.g., in order to motivate the Board to start with BPM), it also directs to the critical aspects to be considered during concrete BPM initiatives. Per BPM initiative, an organization should reflect on the following steps to facilitate brainstorming about a BPM ecosystem:

- What is the concrete business **context** in which the organization operates or strategically wishes to operate, and this both in terms of the environment and the external stakeholders?
- Which process-related **performance** outcomes are strategically desired to sustainably continue operating in this business context?
- In order to achieve the expected performance outcomes, which **enabler** of BPM ambidexterity is needed in this concrete situation? If the initiative is driven by solving a problem (i.e., an existing process bottleneck), then the exploitative aspects of BPM can be used in the next step. Otherwise, if the initiative is driven by a new opportunity, then the explorative aspects of BPM can be followed in the next step.
- Which exploitative or explorative behaviors are possible in the organization per **BPM-related CSF** and per sub-dimension within each CSF, taking into account some contextual restrictions (e.g., demanding customer requests or financial restrictions from the shareholders)?

6.2 | Calls to action

We continue with practical calls to action that stimulate a successful realization of BPM ambidexterity.

- Organizations should apply BPM by balancing exploitation-exploration depending on their particular business context (vom Brocke et al., 2016), instead of strictly adhering to a one-size-fits-all approach (vom Brocke et al., 2014) such as the one presented in well-known maturity models that mainly facilitate more incremental process changes (e.g., CMMI).
- Top managers are encouraged to introduce and promote a philosophy of periodically rethinking their organization's business processes, and this both problem-driven (i.e., for exploitation) and opportunity-driven (i.e., for exploration). Such a philosophy also requires a cultural mind shift in which employees are encouraged to launch bottom-up ideas in order to become more empowered (e.g., by means of an idea box).
- Managers and employees should not be afraid of thinking about radical business process improvements, and be more open to trial-and-error experimentation. Success stories and lessons learned from their own and other organizations can be shared to find common ground. Training is needed to let employees feel more comfortable with applying dedicated exploitation and exploration methods and techniques (Groß, Malinova Mandelburger, & Mendling, 2019).

- All employees should also be incentivized (i.e., possibly financially, but certainly nonfinancially) for out-of-the-box thinking, in addition to their regular evaluations. This means that individual performance evaluations should not punish failed experiments nor employees who dare to critically question current traditions, and that promotions should also be based on idea generation and trials instead of only on the performance outcomes. An organization's human capital is key.
- External stakeholders should be more involved via cocreation efforts to allow for open innovation in order to positively affect business performance and acceptance of products and services.

7 | APPLYING THE BPM TREE TO THE COVID-19 PANDEMIC

This section applies the BPM tree to the COVID-19 pandemic for stimulating radical process improvements, among others telework, namely by translating the steps of Section 6.1 to a more concrete situation. The practical use of the BPM tree is illustrated and discussed with more concrete examples.

The COVID-19 pandemic has drastically affected the **business context** of all organizations worldwide, independent of sector or size, and mainly caused by global lockdown situations. In order to survive, organizations will need to strategically think about their **performance outcomes** during and after the lockdown periods, and which indispensably involves their business processes to operate accordingly. The pandemic thus brings rapid and unexpected opportunities (e.g., for reconsidering work routines, landscape offices, and telework), which trigger the **enabler** of BPM exploration. Efforts in the explorative aspects of the **BPM-related CSFs** and their sub-dimensions can help make the best out of this pandemic. Some examples are given as follows.

Regarding the lifecycle of a particular business process affected by the pandemic, organizations are forced to think more creatively and frequently deviate from too strict, bureaucratic or prescribed standards in order to be able to continue to operate. For instance, schools still teach the same content but differently, and especially more by means of online sessions, blended learning or by flipping the classroom during which theory can be learned through self-study while teachers especially focus on guiding exercises and providing personal feedback. Other examples can be smaller steps that become obsolete or find a digitalized equivalent, such as requesting for approvals or signing documents. Simultaneously, the adoption of teleconferencing and remote working technology has boosted. While introducing such flexibility in process redesigns is crucial for BPM exploration, the unintentional way in which it was entered into the workplace also refers to the notion of constructive or positive deviance, namely: "voluntary behavior that deviates from the organizational norms, but that stems from positive intentions and/or has positive consequences" (Mertens, Recker, Kummer, Kolhborn, & Viaene, 2016: p. 193). Hence, the pandemic gives organizations the opportunity to experiment with more agile ways of working. After the pandemic, this opportunity should be fully grabbed to evaluate the lockdown periods in order to build a more sophisticated business case in which the experienced deviations might find ground into more agile ways of modeling, executing, measuring, and optimizing the business process instead of blindly returning to the old procedures. The latter can help organizations come stronger out of the resulting economic crisis.

Concerning the managerial aspects, BPM exploration helps organizations take a long-term view by trying to gain more business value out of the pandemic consequences. For instance, lockdown teleworking necessarily and intuitively strengthens the self-steering skills of employees, including those for whom it may seem less obvious at first sight. Organizations can build on this experience to provide more formal training in those skills, and simultaneously stimulate lifelong learning. Organizations are also getting more familiar with the full potential of communication tools. Given the pandemic's social isolation, the use of video chatting has tremendously increased, both in one's private and professional live. While such an innovation adoption on a large population scale would normally take multiple years, the COVID-19 lockdowns have forced us to adapt within a few months to less than 1 year. For instance, Hacker, vom Brocke, Handali, Otto, and Schneider (2020) demonstrated that social technologies have opened the pathway to virtual togetherness for daily process activities (e.g., for communicating, attending events or webinars, and consuming services such as career advice or keeping appointments). Moreover, social media can upgrade those applications for reasons of cocreation, namely for idea generation from employees but also from external stakeholders and especially customers. It is not without reason that co-creation is central to innovation management and design thinking (De Koning, Crul, & Wever, 2016; Leavy, 2012), which therefore ties in well with the idea of BPM exploration. Additionally, the advantages of emerging technologies such as AI and robotics can prove their usefulness and ease-of-use (i.e., two determinants for IT acceptance) more fluently (Davis, 1989). Machine-based but also intelligent robots can help reduce the need for close human contact and so reducing the probability of virus transmissions while still providing high-quality services (e.g., in hospitals for monitoring patients, in old people's homes for physiotherapy exercises, in customer service desks for quick responses to customer concerns, and in warehouses for intelligent stock management). While AI has already proved its worth for customer differentiation reasons, COVID-19 can bring the required mental shift (or digital mindset) toward higher acceptance and faster adoption of such technologies due to the fact that humans are getting used to rapid changes, teleworking and the supporting possibilities that IT can offer. Since AI applications are likely to further advance in the near future, organizations will be more able to cope with the ever-increasing high customer expectations.

Furthermore, an explorative process-oriented culture is not only based on teamwork and customer excellence, but also strongly relies on empowerment and entrepreneurship. Process workers now feel a stronger need for positive deviance and the COVID-19 pandemic gives them a sense of empowerment. Organizations should hold on to this feeling and take initiatives to formalize this corporate value for

future use. Entrepreneurship can also be stimulated by launching initiatives for trial-and-error after the pandemic in order to officially experiment with positive deviance. Additionally, Rosemann (2020) asserts that parts of the "old world" (i.e., before the COVID-19 pandemic) will remain whereas the comfortable digital options will stay and create a new office thinking that is more outcome-driven. This mind shift is also likely to include alternative work regimes (e.g., home offices with less fixed-hour work days) and new jobs (e.g., an opportunity manager, a trust designer or a data economist) (Rosemann, 2020).

Finally, building an explorative process-oriented structure is probably one of the biggest steps within BPM ambidexterity because it formally impacts on the organization's heart. Nonetheless, this formalization is also a strong and clear signal to all employees that the philosophy and management approach of BPM ambidexterity are taken seriously and should be followed by everyone involved. While organizations with a BPM tradition might already have a process manager and optimization team in charge, BPM exploration requires more temporary project teams which are multidisciplinary depending on the process innovation project needs. Possibly, the same process manager (i.e., as a permanent role) can act as a project manager (i.e., as a temporary role as long as the project runs). Alternatively, organizations operating under highly competitive market conditions may have already experienced the advantages of creating a start-up in addition to the traditional organization, in order to fully benefit from experimentation. For instance, IT consultants who could not visit their clients anymore during COVID-19 and the related budget cuts, have sometimes been asked to spend more time on internal consultancy projects such as developing competence centers related to emerging technologies. Nevertheless, the creation of start-ups is certainly not a requirement for each organization.

Since the global lockdowns have required rapid and mandatory transformations, all organizations and employees could experience how BPM exploration looks like, and the typical impediment of resistance was exceptionally dormant. Once the global pandemic will be over, it is time for organizations to rethink their future work, for which the balancing efforts between BPM exploitation and exploration will become more prominent. For instance, tensions are likely to appear between learning and unlearning efforts, between being open to or fighting against telework, or between having primarily social contacts in real-life versus being digitally connected. It is then up to the senior managers to make strategic decisions about which business models they wish to realize by means of their business processes (Osterwalder, Pigneur, & Clark, 2010), and to apply change management accordingly to acquire the same "line of sight" among their employees (Boswell, 2006). The above-mentioned examples also illustrate that, for BPM exploration, scholars and practitioners feel the need to generate new knowledge (i.e., by trials and studies) to overcome the uncertainties created by the pandemic (Cegarra-Sánchez et al., 2020).

8 | CONCLUSION

The BPM tree helps organizations manage the fruit (i.e., to acquire the desired process performance outcomes) by summarizing the required elements in the BPM ecosystem, albeit from a high-level and managerial point of view. As such, this structured overview offers an extension to other studies and handbooks. Nonetheless, while the BPM tree redirects managers to crucial points of attention, future research is needed to observe whether BPM ambidexterity may also contribute to building a better social and environmental balance within the organization, namely with potentially less absenteeism, burnouts or staff turnover and with more respect for our planet in general. In sum, the COVID-19 pandemic can be seen as a crossroad with new aspirations.

DATA AVAILABILITY STATEMENT

Data sharing not applicable - no new data generated, or the article describes entirely theoretical research

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