Making use of digital innovations in Business Process Improvements

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Business Process Management (BPM) concept is more and more influenced by the emerging technologies changing the conventional way of improving or optimizing the business processes. Digital innovations and technology have been used to improve and manage people, products, programmes and projects across the globe. Connected devices, big data analytics, cloud computing, robotics process automation, 3D printing or other emerging technologies are commonly used to generate more efficient and effective business processes.

Therefore, nowadays, the businesses are continuously undergoing changes which can be rapid and significant. There are many methodologies/ approaches available to support the businesses improve their processes through change. A strong connection exists between business process improvements and digital innovation as, through a proper combination, has a great potential of generating significant long-term benefits for organizations. Hence, focusing the organization's strategies on digital technology can be a successful direction.

The purpose of this paper is to present potential ways of integrating process improvements methodologies with digital innovation and the main market trends. It focuses on market trends concerning business process improvements and digital innovations. The work encompasses a 'status quo' review in this field together with the main trends in terms of new technologies and their adoption by organizations. Companies started to utilize a wide range of communication channels, integrated technologies or social media platforms to connect with their peers, employees, and clients but also to boost collaborative partnerships. Technology is used to create more participatory businesses by improving collaboration. Furthermore, newest technologies can support effective monitoring of business processes across diverse products and services and counterparties (e.g., suppliers, clients).

This work's conclusions confirm the significant role of digital innovations in business process improvements and provide further insights on how to embed a wide range of new technologies within the organizations' efforts to improve their business processes and operations.

***Keywords:** process improvement, improvement methodology, digital innovation, emerging technologies, process mining, business process management*

1 Introduction

The number of technological solutions is evolving in a rapid pace and, nowadays, these solutions are bringing a new industrial revolution as well as the extension and changes to the current ways of doing business. With the rapid creation and adoption of new technologies (e.g., blockchain, Internet of Things (IoT) or artificial intelligence), organizations are struggling to take maximum advantage of new IT [1].

In response, business operations, business structures and processes need to learn how to adapt and implement a new version of business process management (BPM). This is now being called 'ambidexterity'. The BPM is called ambidextrous if it focuses on the main two aspects:

- exploiting the benefits of existing technologies (i.e., exploitative BPM) and
- exploring the benefits of new IT technologies (i.e., explorative BPM) [2].

New technologies enable disruptive digital innovations (i.e., DI or innovations with new technologies) which are elementary prerequisites of sustainable business processes (i.e., company's long-term way of

working). While product / service innovations are a potential feature for organizations to lead in the market, digital process innovations support with regards to reducing delays (time) and resources [3]. In addition, digital innovations are transforming both the client needs and the infrastructural requirements. New technologies, such as blockchain, IoT, process mining, robotic process automation, artificial intelligence, virtual reality and 4D printing, have the potential to disruptively change business processes.

With regards to the BPM, it is generally accepted that the business processes follow a cycle from the process identification stage, moving to implementation and further to the monitoring and control stages [4]. There are various studies available that highlight the BPM maturity model [5], the BPM core elements [6] and BPM context factors [7]. In the last period, students started focusing on new topics like green BPM, the human aspects of BPM, social BPM and ambidextrous BPM [8]. It was also noted aspects covering how two streams of BPM and digital innovations can be combined and highlighted benefits of common methodologies. Other studies presented seven paradoxes concerning BPM and related synergies with IT by suggesting smart devices and digital transformation. The changing dynamics of high-speed internet and digital technologies are thus also entering the BPM discipline.

The open innovation is one of the key factors needed to ensure sustainable development through change in business processes and operations [10]. In response, to let the BPM discipline better prepare for a digital knowledge economy, there were several studies conducted through an expert panel with practitioners' opinions on future BPM trends covering to emerging technologies and digital innovations. This study revealed seven BPM-DI trends based on experimental data only, however this paper's work is to supplement these trends with practical examples and further critical thinking to substantiate the extent to which the current

level of knowledge lectures each trend, and to get better information regarding the existing differences between what is practical relevant and the availability of the current knowledge. The current research purpose is to explore any uncovered aspects of BPM available methodologies and researches in relation to the newest digital technologies from the past few years and current trends. This research's principal benefits would be to note the main advantages of digital innovations that were less or not explored so far in relation to BPM activities. Therefore, to get to a well-informed research and information with regards to BPM and digital innovation synergies, this paper's main question at this point would be with regards to any unexplored areas in 'status quo' concerning the application of digital innovations in business process management.

2 Background
This paper provides next some relevant details with regards to BPM and DI, then it provides further information on the main trends noted in the market and some useful examples on the available technologies that goes hand in hand with BPM concept.

2.1. Business Process Management
BPM is often defined as a complex set of techniques to discover and understand a business process, to re-shape designs for that processes, monitor it by defining proper metrics and data, as well as by optimizing and automating the processes by considering technological, financial and human resources. In addition, some other researchers have noted this set in a BPM lifecycle with various phases to address a business process, namely iterations that begin with process identification and process discovery, then process analysis and redesign, leading to the actual implementation and then monitoring and control [4].

Above, the paper shows the main phases of a BPM lifecycle; each of these phases require innovation in order to increase the process

operating pace or speed [11]. These innovations should also closely adhere to organizational goals, both explorative and exploitative goals so to achieve the needs of ambidexterity in a digital knowledge economy. With enhanced flexibility features, ambidextrous BPM is more dynamic and extends traditional BPM with a more balanced view between incremental and innovative process changes.

The way of approaching the BPMs and the continuous transformation of knowledge support the transformation approach leading to a more dynamic BPM. For example, sharing of know-how coming from experience persons to new joiners among process teams is crucial for the BPM success [12]. Binci et al. [13] presented four project-based factors including (1) task specialization, (2) knowledge transfer, (3) conversion of knowledge and (3) ambiguity and change management, that would support in the adoption of ambidexterity.

Fast pace innovations in business processes increase the productivity and support the overall company's financials improvements. Hence, if BPM would dynamically change in a constant way this would facilitate the organizational performance improvements in multiple perspectives. Given that the business process modelling is seen as prominent BPM sub-areas, which are now reshaping abruptly, prior researches have contributed to these domains while other BPM sub-areas such as ambidextrous BPM have not been under the focus from an innovation point of view [2].

Digital Innovations
The newest technologies are applied by digital innovations in order to solve most part of the existing business issues and to improve current practices so to achieve new transformation or business models, processes, products or services. Some of the emerging technologies proved to have a positive impact on the execution of the processes' activities or task which allow a better coordination among work teams and impact the entire BPM lifecycle, albeit more influential at the re-design phase.

There are various examples of digital innovations that involve easy and rapid integrations between IT environment and operations, secure payments technologies or automatic price updates. Or smart devices can be used to upsurge process improvement for an organization to go faster and within budget. Interoperability between the BPM lifecycle phases and IT innovations is important to achieve best benefits from information and data. There-fore, the strategical and operations levels of organizations are both impacted by digital innovations.

2.2. BPM and Digital Innovations trends
As above mentioned, the BPM concept is under trans-formation in the digital economy in order to create new opportunities for improving and automating business processes. The newest IT technologies are able to auto-mate a high degree of manual interventions within a business process with the support of internet solutions and / or intelligent tools. For example, the use of social media and related tools can connect more easily the business products with their consumers leading to in-creased sales and facile access to consumers' feedback. The technology can support with real time data analysis for tracking and monitoring in a fast and efficient way.

There is a general understanding that digital transformation can reshape the BPM concept, however, there is a need of more research to fully grasp the opportunities and related benefits. This is the reason for consolidating the opinions of the main BPM practitioners regarding how they understand the BPM future linked to the technological developments. Those are being categorized into the following main trends that could govern the markets:

1) Customer experience changing continuously;
2) Strong synergies between BPM and digital innovation;
3) Faster innovations, drive process changes, challenge current way of working;

4) Increased alignment between IT and business operations;
5) BPM is gaining traction in the organizations (e.g., In Process Modelling and Monitoring);
6) Reduced resistance in relation to BPM and DI.

2.2.1. Customer experience changing continuously

The first trend related to BPM and DI refers to the fact that the digital tools continues to change in a constant way the experience of business customers and this possibly with an increased speed. By using enriched data management and big data analytics, companies can make more use of data for incorporating customer-centric offerings [14].

Customer experience sits at the core of the business process improvement concept. Market responsiveness and developing proper customer value propositions are the basics of developing a great customer experience. The organizations can own a significant amount of data and applying big data analytics can help identify and differentiate between customer profiles based on a faster retrieval of information than before. Ultimately, providing a customization facility can improve customer relationships, stimulate customer engagement and determine/predict consumer behaviors [15].

There are various tools available to improve customer experience, such as data mining, machine learning or artificial intelligence. Data mining relates mostly to discovering patterns in large datasets using real-time customer data, machine learning is about the scientific study of algorithms and models that information systems apply to perform tasks without or minimum human instructions but with machines behaving human beings. Artificial intelligence also uses big data to derive decisions and for making predictions. For example, nowadays, many organizations are already using is a Customer Relationship Management system for storing and sharing real-time information

of customers. There-fore, with the application of all these tools or solutions, the customer experience can change massively due to the interventions of emerging technologies, and this will only increase in the future.

2.2.2. Strong synergies between BPM and digital innovation

The newest technological developments are responsible for this shift towards ambidextrous BPM. Most part of the organizations already use the traditional BPM methods and techniques, however, the explorative way of doing BPM will support to boost a culture of timely communication and collaboration (though the use of communication technologies or social media) and entrepreneurship to identify new techniques and new ways of doing business (e.g., Delivery Hero). In this case, the success of BPM is boosted by the strategic adoption of newest IT technologies. It is important to note that the business process goals should be in line with the organizational goals but the alignment between IT and business is of a significant important for a successful BPM.

Currently, the BPM concept must deliver value out of employees and customers, this being called value-driven BPM. Furthermore, the key noted from the market practices is the need to get a proper balance between the exploitative and explorative business processes to achieve organizational performance. For example, the trend discussed in this section includes big data management that show how big data can be used and linked to digital innovation and BPM. In an ambidextrous environment, the role of big data for creating a balance between exploitation and exploration is discussed less within the existing literature. Usually, the newest technologies in the market are rapidly adopted by organizations in their aim to gain a relative competitive advantage. IT enables organizations to get the maximum benefits from the available data. Therefore, changing an organization's strategies towards digital technology can be

a successful way towards achieving best benefits.

2.2.3. Faster innovations, drive process changes, challenge current way of working

Business processes can be more efficient and faster through applying the agile principles. By looking at the traditional (exploitative) BPM approaches, Six Sigma, Lean Six Sigma or lean manufacturing have been used since many years and which are in line with the continuous process improvements concept. In the same sense, Total Quality Management (TQM) is used to in-crease the quality of the business processes while the relevant ISO standards (e.g., ISO 9000 standards) are used in relation to various products / services and organizations.

Regarding the exploration reasons, BPM requires a combination of standardization in today's high-speed internet with an increased awareness of the DI potentials. Hence, understanding more about the new technologies is paramount to improve business processes. BPM managers and practitioners must be trained in time management, so they can promote teamwork in their teams and projects. Similarly, project management skills are highly important to manage each BPM lifecycle phase.

In addition, BPM maturity models have an important role in the adoption of digital technologies. For instance, [16] contributed to a well-defined maturity model involving strategic alignment, culture, people, governance, method and IT elements, which revealed how these core elements can contribute to BPM success (albeit with a stronger focus on exploitation).

There can be concluded that digital technologies raise new opportunities for innovation by sharing information externally (i.e., outside of the organization). Innovation in business processes is positively associated with an information exchange towards an organization's environment. The ease of use and perceived usefulness of the emerging technologies also contribute to a positive integration with business processes. Agile business process improvements is possible in different ways. One way is to divide the innovation project into sub-tasks and to integrate them with the help of digital technologies. Another way is using BPM knowledge with user-friendly BPM systems or suites (BPMS). Knowledge transformation in BPM enables faster communication, a deeper understanding and a rapid execution of tasks. Therefore, unspoken know-how should be converted into spoken knowledge in BPM scenarios. BPM is reshaping in such a way that it becomes more agile and faster in critical cases.

2.2.4. Increased alignment between IT and business operations

The IT capabilities should be used in order to gain competitive success and continuous strategic alignment. The alignment between business and IT refers to the required integration between the business strategy and the company's IT strategy, but also between the business and its IT structures. This alignment type remains a major concern to be assessed by IT departments. There are various research studies performed before that examined the alignment between business and IT, such as its measures and outcomes. In addition, alternative studies discussed the ongoing nature or sustainability of business - IT alignment [17].

Nonetheless, business - IT alignment is one of the key areas required to be explored for a successful BPM in the twenty-first century, for which the IT architecture constitutes an important pillar. The company's process architecture must be aligned to the entire enterprise architecture in order to ensure a smooth execution of the activities and related tasks. Business - IT alignment is strengthened through the collaboration in each BPM lifecycle phase and helps achieve a more rapid processing time, improved customer experience, beneficial technological transformations, achieving IT agility and increased collaboration. Furthermore, the overall financial performance of the companies could

improve as well. The alignment between IT and business processes provides further support for customer involvement and allows the companies to get closer to the digitized solutions, such as RPAs or Artificial Intelligence tools.

2.2.5. BPM is gaining traction in the organizations (e.g., In Process Modeling and Monitoring)

Previous research studies show that the traditional (exploitative) BPM approach received several criticisms by claiming that it can be way too bureaucratic. Now, the newest technologies offer the possibility to the BPM to become more attracting for the organizations with regards to practicing new ways of process modelling and monitoring. More appealing things are happening on the BPM exploration domain, such as journey mapping through a comic book style [18], which strongly contrasts with the traditional process languages (e.g., process diagrams in BPMN and UML). Real-time application monitoring tools are useful for monitoring an IT infrastructure.

Additionally, network monitoring tools are used more and more by the organizations given the benefits brought. Furthermore, explorative tools have been designed for more demand-driven, case-driven and value-driven BPM. Knowledge management tools are introduced to derive knowledge-intensive processes that perform in unexpected conditions.

Similarly, knowledge-intensive BPM works in unstructured environments by using knowledge to promote employee involvement in process improvements projects. Other examples are intelligent neonatal monitoring systems using multi-sensors for intelligent monitoring. The above-mentioned explorative BPM examples also turn out to be successful. For instance, studies showed that a business intelligence implementation in BPM escalates the performance of corporate performance management [19]. Knowledge management in BPM appeared to ensure the quality of data and information. On the other hand,

reducing carbon footprints across the BPM lifecycle stages are vital steps towards achieving green BPM. Nonetheless, while digital process innovations help advance process analytics and trigger a new generation of process modelling and of organizational capabilities by emerging technologies, these types of technologies would decrease in future human interventions in BPM.

2.2.6. Reduced Resistance in relation to BPM and DI

The latter trend in relation to BPM & DI shows a reduced degree of resistance against process change through promoting an adaptation culture in digital technologies and a learning organization. Until now, change management models like Lewin's change management model and the McKinsey 7-S model have been applied in BPM. Demonstrated techniques for managing process changes are culture mapping, metrics and flow chart, force field analysis. New curricula in IT and BPM confirm that change management remains beneficial in removing the hindering factors in BPM and learning. For example, a future BPM trend could include teaching BPM practices, teaching BPM as a problem-solving domain and teaching about the technology-driven benefits of BPM. A paradigm shift from exploitative BPM to explorative BPM is seen as a must to be considered in future BPM curricula.

Educating the people and organizations about BPM depends on the effective utilization of available data, namely how organizations use the data regarding employees and customers. Intangible metrics or elements, such as job satisfaction, job and performance engagement, can be determined by data with the help of technologies in a BPM environment. Evaluation criteria and measuring standards can be made available to unexperienced employees for reasons of learning. Employee participation in strategic process decisions is inevitable for organizations to avoid an integration cost on a later stage. Experienced-based learning

considers experience as the main method of learning for BPM tools and techniques. A learning cycle can be used to transform tacit knowledge into work patterns.

In addition to the impact of digital innovations on BPM, other factors such as social culture and work culture also have a promising role in reinventing BPM. For example, an educated society with an open culture is less resistant to change, and therefore more open to disruptive process changes. Similarly, digital innovations also have an impact into the social culture. In other words, the BPM concept is not only reshaped by technological factors but also cultural changes which reinforce the former.

Over-all, all expected trends can already be observed in the literature, at least to some extent and with different dimensions. Based on these trends, the intention is to in-corporate them into an updated business process improvement methodology that would cover the features brought by the newest BPM conceptual ideas.

3. Emerging Technology - Deep dive into Process Mining

The research performed within several high-scale organizations showed some of the mainstream digital innovations and concepts used at the moment. **Process Mining** is a relatively new area of study grounded in a long tradition of businesses striving to optimize business outcomes by improving the efficiency, effectiveness, and productivity of their critical workflows. Process Mining happens in four distinct stages:

a. Collection of time-stamped event log data from key transactional systems

b. Discovery within that data of real processes as they happen

c. Enhancement of those processes to optimize business outcomes

d. Monitoring those changes for further improvement opportunities.

Early core business processes were simple (and often manual); but as businesses have digitized every aspect of working life into IT systems, core processes have become complex operational machinery in and of themselves - too fast, frequent, interconnected and distributed to manage manually.

Process improvement is not a new idea. But the scale and complexity of the modern process environment has quickly accelerated beyond the capabilities of traditional tools. Process mapping software, business intelligence initiative - or worse, whiteboards and post-it notes - just can't deliver the real-time insight and control that continuous process excellence demands. Process Mining isn't just about resolving the mountain of complexity and friction that most organizations have unconsciously accepted as the cost of doing business. Its true value is in connecting granular operational performance to high-level business outcomes on a continuous basis.

One of the most used process improvement methodologies is Lean Six Sigma which follows the well-known DMAIC methodological steps, as per *Figure 1* below:

Fig.1. DMAIC

Hence, the traditional way of improving business processes involves a high number of activities that involves high costs and time to implement. The newest technologies could streamline greatly the improvement process through use of emerging technologies, implying reduction of required steps or activities which would reduce company's cost and time. By making use of the available technologies, the process improvement work could be simplified to fewer activities while the remaining activities are to be automated, letting the technology to play its role.

For example, in one of the largest global FMCG (Fast-Moving Consumer Goods) companies the combination between Lead Six Sigma and process mining technologies was successfully implemented by following three (3) main steps, as per *Figure 2* below:
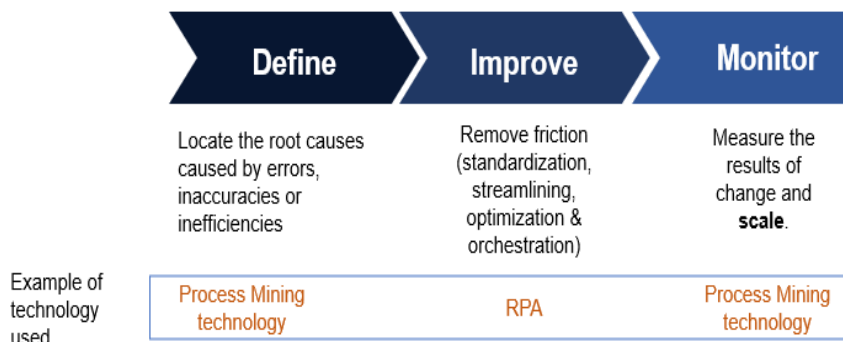
Fig.2. Simplified process improvement flow

We can see from the two figures above that the technology has played an important role in reducing the number of activities required to identify pain points and to improve the process. Some main steps of Lean Six Sigma methodology have been followed though.

Looking closer to how process mining technology has been used, it followed four (4) steps framework, as follows:

1. Define main goals

2. Define actionable initiatives

3. Identify frictions

4. Define standard metrics and future scalable actions.

To showcase one practical example, the planning process with regards to the process mining process within this company has followed the following main framework:

1. Which are company's main goals?
    a. Improve delivery times to drive enhanced customer satisfaction
    b. Obtain a competitive advantage in relation to the main clients
    c. Scale the process and improve targets and results

2. Which are the actionable initiatives to achieve those goals?
    a. Get full understanding over the order management and fulfilment
    b. Automate so to reduce the cycle times
    c. Get robust information on product management

3. What are the frictions the imped goals realisation?
    a. Most part (>50%) of credit checks were done for low value accounts
    b. Lots of blocked deliveries which required time to process
    c. Repetitive penalties paid to customers due to delays

4. What metrics can be applied to solve the frictions?
    a. Credit checks reduction
    b. Reduced number of blocked orders and improved resolution of those blocked
    c. Increased on-time delivery

5. What further improvement opportunities could be pursued?
    a. Master data clean-up
    b. Increase the number of orders that wouldn't require manual checks
    c. Obtain around GBP 4.5 mln savings.

This type of framework supported the organisation to organise the foundation for aligning the objectives at company level for all pertinent processes.

Automation was a key component of this case which allowed using RPA or bots (UiPath Technology) to perform required actions much faster and error free.

Moving further with the **Order to Cash** example the company followed the adoption of an explorative approach in improving the business processes. The combination of the traditional process improvement methodologies with the use of emerging technologies has led to a successful outcome. In *Figure 3* below there is further information on how the actual Order to Cash process has changed and which are the main benefits.

The new solution combined the best of both sides: reducing manual interventions and cycle times overall, while preserving the high-value human touches where needed.
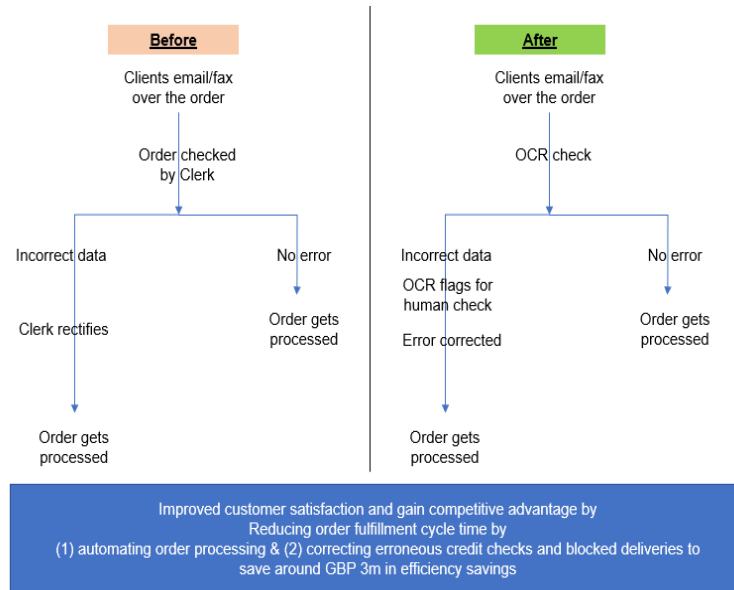
Fig.3. Order to Cash case

On long term basis, the following benefits are expected to be delivered given the analysis performed over 3-month period (*Figure 4*):

Fig.4. Longer term benefits in Order to Cash

These types of process improvement initiatives are often scalable and applied in different cases or business areas. This is what happened next and led to further improvements, as per *Figure 5* below.

It was very important for the Company that it gradually built-up the success through the hierarchy of business process improvement, as the benefits of the initiative compounded over time.
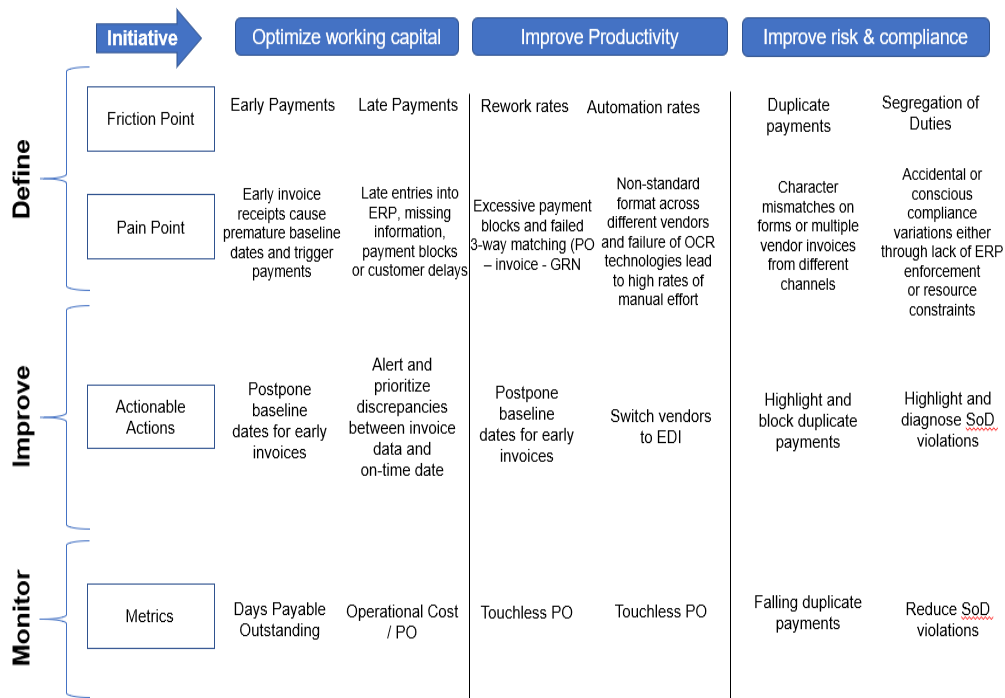
Fig.5. Examples of improvement cases

Initially the process improvement begun with a credit check correction exercise that quickly gathered in pace and scope as early quick wins were further reported. The optimization plan went through various stages of analysis over the digital prints of the in-scope process. *Figure 6* presents the process noted by the team, that led to desired optimizations:

Fig.6. Optimization process undergone by the company

The optimization of expedited delivery appeared initially to be a 'no-go' as the company was having issues with on-time delivery on standards sales orders. However, the technology used (Celonis Process Mining) made available this important business case.

4. Conclusions

Emerging technologies and digital innovations provide the organizations with further opportunities to reshape and streamline the BPM. Digital process innovations help accomplish tasks in faster

and smarter ways. For instance, smart cities take advantage from IoT devices for doing technology-enabled monitoring. The BPM combined with the newest technologies can change the value propositions of customers, which opens new avenues to develop a strategic alignment between the organizational policies or rules on the one hand and the BPM features on the other hand.

The research studies performed so far could support to differentiate between the yet covered BPM - DI themes in the literature and the still uncovered avenues that would support further development in the BPM area, including process improvement and optimizations. Process mining is a technology which gains more and more attraction for organizations given the benefits noted so far in relation to a new way of approaching the explorative BPM. Process mining is a clear example of the explorative BPM approach. The combination of traditional busines process improvements methodologies and newest IT technologies on process mining (such as UiPath Platform or Celonis Process Mining), for example, allows additional flexibility as an action driven system for identifying and solving complex issues and scalability towards obtaining ambitious business outcomes.

The technology revolutions and adoptions during last years gave a paradigm shift for managing business processes digitally, as BPM goals are not only set to target organizational goals BPM strategies aligned with IT, employees, customers, etc., brings value-driven process because a well-defined BPM leads to an innovative and adaptive way of working. The context of digital transformation requires a rethinking of the dominant assumptions that have characterised how we think of BPM and triggers further development in the methodological space to respond to the following questions:

1. Are the traditional methodologies still efficient in the context of emerging technologies that proved to be successful?

2. Is there a need to enhance the current process improvement methodologies that would consider more the emerging technologies' features?

3. Which are the criteria the organisations should use to decide what technology to adopt given its aim of improving processes?

The overall results show the need for further efforts and research with regards to the market practices depending on the industry the organizations operate on. But we consider that adapting the traditional process improvements framework to the available technologies in the market (e.g., process mining) will provide the foundation for a cohesive strategy on a case-by-case basis. An adapted framework like this gets the whole organization aligned in one place, from process practitioners to senior stakeholders. We intend to continue with integrating the ideas of adapting process improvements methodologies or concepts to the emerging technologies which would have the potential to obtain new and better framework that will support a smoother, more efficient and less costly way to improve business processes.

References

1. Singh, S., Rathore, S., Park, J.H., BlockIoTIntelligence: A Blockchain-enabled Intelligent IoT Architecture with Artificial Intelligence. Future Gener. Comput. Syst. 2019.

2. Ferraris, A., Monge, F., Mueller, J.: Ambidextrous IT capabilities and business process performance: An empirical analysis. Business Process Man-agement 2018.

3. Rosemann, M., Proposals for future BPM research directions. In Asia-Pacific Business Process Management; Springer: Cham, Switzerland, 2014.

4. Dumas, M.; La Rosa, M., Mendling, J., Reijers, H.A. Introduction to Business Process Management. In Fundamentals of Business Process Management; Springer: Berlin, Germany, 2013.

5. Tarhan, A., Turetken, O., Reijers, H.A. Business process maturity models: A systematic literature review. Inf. Software Technology 2016.

6. Rosemann, M., Brocke, J., The Six Core Elements of Business Process Management; Springer: Berlin/Heidelberg, Germany, 2015.

7. Vom Brocke, J., Zelt, S., Schmiedel, T. On the role of context in business process management. Int. J. Inf. Manag. 2015.

8. Ahmad, T., Looy, A. Van Reviewing the historical link between Business Process Management and IT: Making the case towards digital innovation. In Proceedings of the IEEE Thirteen International Conference on Research Challenges in Information Science, Brussels, Belgium, 2019.

9. Mendling, J., Pentland, B., Recker, J.: Building a Complementary Agenda for Business Process Management and Digital Innovation. 2020

10. Yun, J.H.J., Jung, W.Y., Yang, J.H. Knowledge strategy and business model conditions for sustainable growth of SMEs. J. Sci. Technol. Policy Manag. 2015.

11. Marrella, A. What Automated Planning Can Do for Business Process Management. In Business Process Management Workshops; Springer: Barcelona, Spain, 2017.

12. Koopman, A., Seymour, L.F., Factors impacting successful BPMS adoption and use: A South African financial services case study. In Enterprise, Business-Process and Information Systems Modeling; Springer: Cham, Switzerland, 2020.

13. Binci, D.; Belisari, S., Appolloni, A. - BPM and change management: An ambidextrous perspective. Bus. Process Manag. J. 2019.

14. Spiess, J., T'Joens, Y. Dragnea, R., Spencer, P., Philippart, L. Using big data to improve customer experience and business performance. Bell Labs Tech. J. 2014.

15. Bleier, A., de Keyser, A., Verleye, K. Customer engagement through personalization and customization. In Customer Engagement Marketing; Macmillan, P., Ed.; Springer International Publishing: Cham, Switzerland, 2018.

16. Rosemann, M.; de Bruin, T. Towards a business process management maturity model. In Proceedings of the 13th European Conference on Information Systems (ECIS 2005), Regensburg, Germany, 26–28 May 2005; The London School of Economics: London, UK, 2005.

17. Wong, C., Skipworth, H., Godsell, J., Achimugu, N. Towards a theory of supply chain alignment enablers: A systematic literature review. Supply Chain Manag. 2012.

18. Veale, T., Feyaerts, K., Forceville, C. Creativity and the Agile Mind: A Multi-Disciplinary Study of a Multi-Faceted Phenomenon; Walter de Gruyter: Berlin, Germany, 2013.

19. Richards, G., Yeoh, W., Chong, A.Y.L., Popovic, A. Business Intelligence Effectiveness and Corporate Performance Management: An Empirical Analysis. J. Comput. Inf. Syst. 2019.

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