

# Driving Innovation through Process Management:

Realizing the Potential of Digital Transformation

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# Abstract

Companies must apply their innovation capabilities in an agile way to achieve an immediate impact while preparing for disruptive improvements. This is especially important for digital transformations which deliver their value through the resulting business processes. Business process management (BPM) as a management discipline helps to address these needs. Correctly set up, the BPM-Discipline delivers more than just efficiencies, quality, or compliance. It establishes an agile and focused innovation capability within an organization. Process management delivers process innovation in the form of new or enhanced business processes, organizes the way organizations address innovation, and helps manage the innovation process. This paper examines the relationship between process management and innovation. It shows how the discipline of BPM becomes a major enabler of agile innovation that delivers the full potential of digital transformation initiatives.

**Keywords:** BPM, Business Process Management, Design Thinking, Digitalization, Digital Transformation, Innovation, Innovation Process, Process Design, Process Innovation, Process of Process Management.

# 1. The Role of Process Management for Innovation

Leveraging business process management for agile innovation has become a key topic for many organizations [0]. The ever-shifting business landscape, coupled with ubiquitous digitalization, continuously presents organizations with both opportunities and threats. Perpetually changing market conditions compel organizations to integrate innovation into their daily operations [1]. This necessitates harnessing the potential of digital technologies to achieve innovation objectives. To this end, companies must wield their innovation capabilities with agility, effecting immediate impact while bracing for transformative advancements. This article elucidates how business process management (BPM), as a strategic management discipline, bolsters the requisites for ongoing innovation and interconnected digitalization [2][3].

While operational process management often confines itself to tactical enhancements, the meticulously structured BPM-Discipline transcends mere efficiency, quality, or compliance gains. It carves a nimble and focused innovative prowess within organizations, manifesting as novel or refined business processes, and orchestrates the strategic management of innovation endeavors.

This paper delves into the symbiotic relationship between process management and innovation, unveiling an overlooked facet of BPM. It highlights how BPM serves as a potent catalyst for agile innovation, thus unlocking the complete potential of digital transformation initiatives as integral components of this dynamic, process-driven innovation paradigm.

## 1.1 Impact of Business Process Management on Innovation

Widely used definitions of innovation include the following [4]:

- the introduction of something new
- a new idea, method, or device
- the successful exploitation of new ideas
- change that creates a new dimension of performance

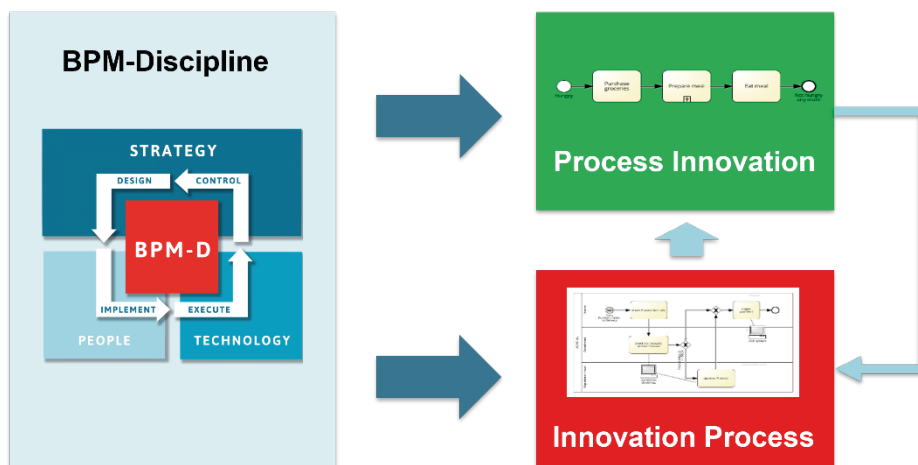
Thus, innovation revolves around stimulating a novel business impact. It extends beyond mere invention, as exemplified by emerging technologies. Instead, it hinges on the utilization of these inventions to create tangible business value. Consider, for instance, the case of the Fraunhofer Institute, a German research hub, which pioneered the MP3 format to digitize music. Herein, the institute stands as the inventor. However, the subsequent sale of this invention to Apple ushered in a transformative business endeavor—a fresh approach to music delivery through iTunes Store, iPods, and an array of integrated components. In this paradigm, Apple emerges as the innovator, harnessing the invention to generate substantial business impact.

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In a business context, agility encapsulates the ability to promptly and deftly respond to shifts in the business landscape [5]. In essence, agile innovation encompasses generating novel concepts within tight timeframes, swiftly rectifying shortcomings, and recalibrating the organizational innovation trajectory to match evolving requisites.

Emanating as the discipline that channels strategy into executable actions, Business Process Management (BPM) operates at the confluence of individuals and technology, executed with precision [6].

This definition underscores BPM's dual role in shaping an organization's innovation potential [3][7]. On one front, BPM, through adept design and seamless execution, furnishes novel or profoundly refined business processes—a hallmark of "process innovation." Simultaneously, it orchestrates and streamlines the avenues through which an enterprise innovates across diverse spheres. This orchestration is encapsulated in the management of the "innovation process" itself, further exemplified by the potential of process innovation as a tangible outcome. The interplay between process management and innovation is vividly captured in Figure 1.



**Figure 1: Impact of Business Process Management on Innovation**

The transparency inherent in process management prompts the essential agility required for process innovation. Facilitated by supporting tools like modeling and repository applications, this transparency expedites the evaluation of diverse process scenarios, enabling swift adjustments to innovative processes.

Furthermore, the discipline of process management fosters an agile structure for orchestrating the innovation process, facilitating rapid responses to emerging business contexts. Thus, process management not only underpins innovation as a whole but also stands as the bedrock of agile innovation. This agile innovation assumes heightened significance, particularly within the realm of digital transformations.

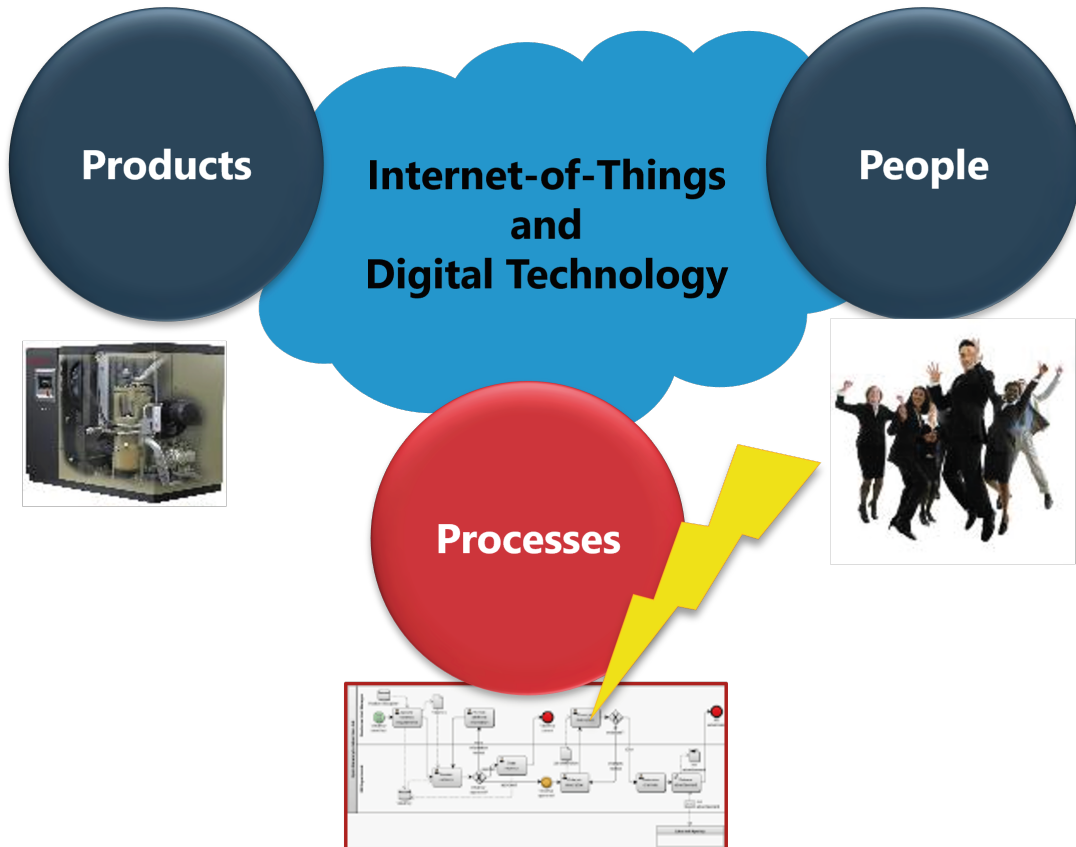
# 1.2 Importance of Innovation through Process Management for Digitalization

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Digital transformation (synonymous with digitalization) entails the seamless integration of products and services with human interactions, harnessing digital technologies—often rooted in the internet.

The value derived from these technologies materializes through meticulously crafted novel or enhanced business processes. This encapsulation of digital transformation is vividly depicted in Figure 2.



**Figure 2: Illustration of the Definition of Digital Transformation**

Organizations frequently grapple with addressing the procedural dimension of digitalization. A mere 1% of companies have adeptly mastered their business processes to unlock the complete potential of digital technologies [10]. Remarkably, these successful entities have established a structured process management discipline, a vital cornerstone in enabling them to realize the anticipated value from digital transformation, inclusive of requisite process innovation. Moreover, this discipline provides an innovation framework that bolsters both digitalization and process innovation endeavors [11][12].

The agility fostered by process management assumes paramount importance within digitalization initiatives. It ensures the prompt infusion of value into the organization through intermediate digital solutions, cultivated through an agile methodology, which effectively actualize pertinent process scenarios. This flexibility empowers companies to adeptly adapt to novel technologies or more comprehensive utilization of existing ones.

Notably, process innovation has played a pivotal role in the landscape of digital transformation, yielding significant and tangible economic impact.

# 1.3 The need to examine the impact of Process Management on Innovation

The majority of research concerning business process management has pre-dominantly revolved around its application for achieving tactical enhancements in business operations. Approaches centered on process-led improvement and optimization primarily emphasize the delivery of value through enhanced cost and time efficiency, elevated execution quality, and compliance with legal and company-specific prerequisites. However, in the digital era, the significance of process management in fostering innovation has grown increasingly paramount. Curiously, this aspect has not yet been adequately addressed within existing re-search initiatives.

This article endeavors to bridge this gap by delving into the pivotal role of process management as a catalyst for innovation. It explores how process management, underpinned by digital technologies, not only enables but also bestows the requisite agility for cultivating an innovative capability. This analysis unfolds in two distinct stages:

- Examination of process management's role in driving process innovation
- Scrutiny of process management's impact on the broader innovation process

This structural framework aligns with the earlier delineated relationship between process management and innovation. However, it is important to note that process management is not the sole determinant of innovation's success. Several other pertinent research domains, including the utilization of creative techniques and collaborative innovation with partners, remain outside the purview of this article's examination. This structural framework aligns with the earlier delineated relationship between process management and innovation. However, it is important to note that process management is not the sole determinant of innovation's success. Several other pertinent research domains, including the utilization of creative techniques and collaborative innovation with partners, remain outside the purview of this article's examination.

## 2 Delivering Process Innovation

Increasingly, innovations are shifting their focus from tangible products to intricate business processes [2][3]. People are pioneering novel processes and establishing enterprises built upon these process innovations. Amazon, for instance, did not invent the concept of the book, yet it ingeniously devised a new process for selling books, forming the bedrock of its corporate identity. In a subsequent bold stride, they expanded into a comprehensive online retailer, capitalizing on their process innovation and infrastructure. Similarly, eBay did not originate the concept of auctions, but its user-friendly online processes amplified the appeal of auctions and the potential for profit.

Platforms like LinkedIn and Facebook introduced fresh processes to facilitate relationship management and personal networks. Dell's inception did not herald the invention of the PC; however, it did pioneer new business processes to streamline PC distribution, eliminating superfluous supply chain steps while enhancing customer flexibility and control. These processes became Dell's primary differentiator in the fiercely competitive market, catalyzing the company's inception and growth. A substantial majority of e-businesses, including giants like Uber, Expedia, and Grubhub, trace their roots to process innovation—a pivotal aspect of the digital transformation reshaping the economy.

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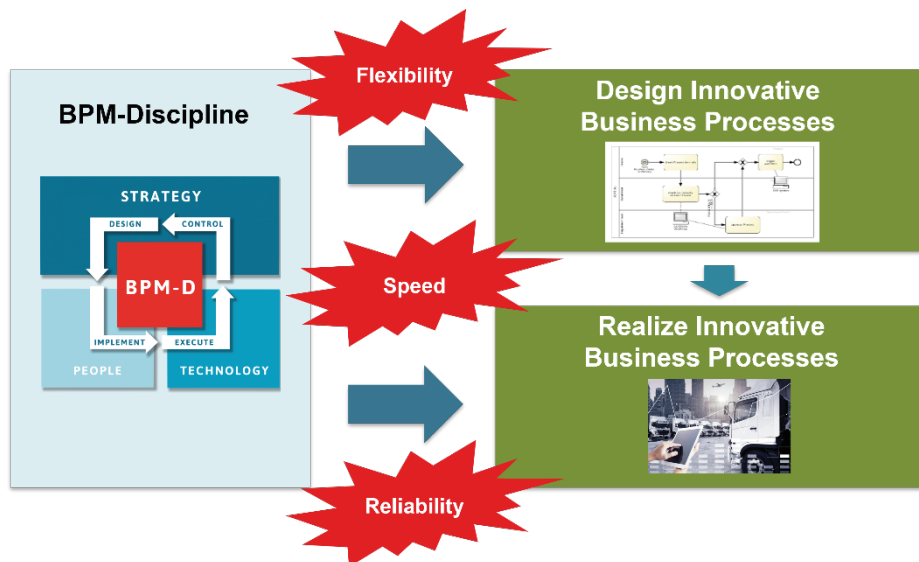
Even traditional enterprises are increasingly directing their focus toward process innovation. For example, companies in the machinery sector are offering more streamlined and dependable service processes, bolstered by internet connectivity for clients and equipment.

Airlines have simplified ticketing processes to cut costs and elevate service quality through online ticketing. Banks are enhancing efficiency and customer service via online banking, while mortgages are seamlessly offered through internet-based processes. Thus, process innovation, often intertwined with digitalization, has yielded a substantial impact for traditional enterprises as well.

# 2.1 Delivering Process Innovation through Process Management

The discipline of process management strengthens process innovation through two fundamental avenues: firstly, by facilitating a more efficient and flexible design of novel processes, and secondly, by ensuring the dependable execution of these processes [3].

This duality expedites the pace of process innovation and streamlines the execution of modifications, thereby enhancing the agility of innovation. The impact of business process management (BPM) on process innovation is visually depicted in Figure 3.



**Figure 3: Influence of Business Process Management on Process Innovation**



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Process management facilitates the design of innovative processes by applying creative techniques like design thinking within a process context [13]. Design thinking encompasses [14]:

- **Empathy:** understanding stakeholder issues to formulate suitable solutions
- **Transfer:** delivering innovative solutions by adapting successful practices from one business area to another
- **Agility:** rapidly testing solutions for swift correction and adjustment as needed.
- **Storytelling:** supporting the rollout of successful solutions through appropriate context and related narratives

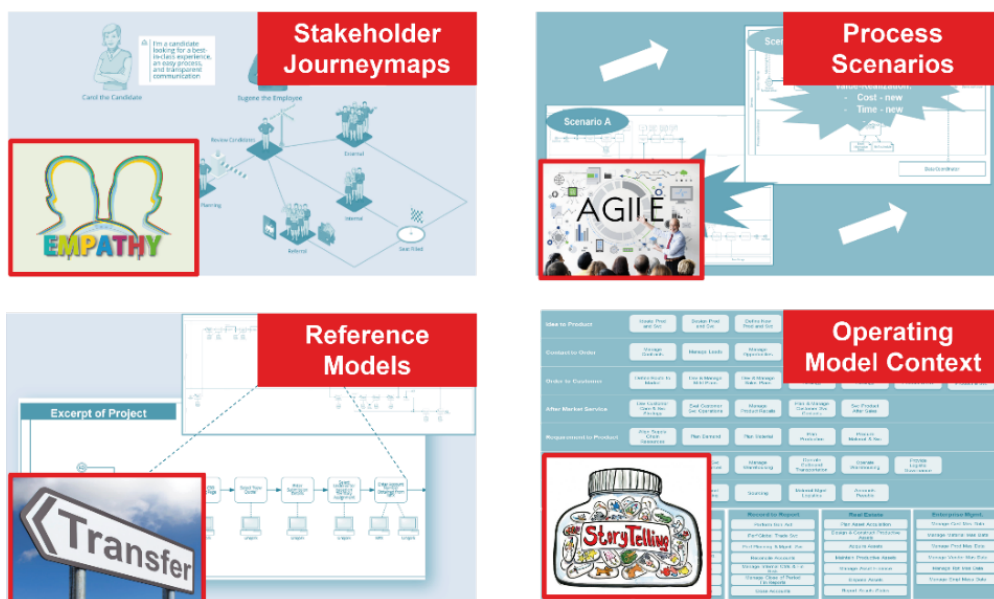
The discipline of BPM offers methods to incorporate these aspects of design thinking. Through integrated stakeholder journey planning, a comprehensive perspective on processes is gained from the standpoint of specific stakeholder groups [15]. This approach identifies touchpoints that stakeholders have with the organization and links them to underlying processes. Desired improvements in stakeholder experience can thus be translated into practical process enhancements. While customer journey maps are commonly employed to address customer experience, this approach can also be extended to other stakeholder groups, such as supplier or employee journey maps. In the context of digital transformations, journey maps play a pivotal role in achieving an enhanced experience, particularly for customers, which often represents a core value of digitalization.

The utilization of process reference models facilitates the pragmatic transfer of best practices across different domains (e.g., industries) [3]. For instance, a bio-logics company could leverage the product configuration expertise of machinery firms to develop patient-specific medications. In the realm of digital transformations, reference models elucidate the business impact of digital technologies, enabling the effective transfer of optimal practices in technological deployment [16].

Process scenarios are delineated to represent intermediary stages towards a targeted process outcome. These scenarios serve to test multiple process variations and support the application of agile development approaches to underlying digital technologies. Process management orchestrates the incremental realization of business processes and aids in setting reasonable expectations concerning the benefits yielded at each realization step [17].

Integrating process innovation into an organization's overall operating model, along with its hierarchical decomposition, facilitates a seamless rollout of process innovation. This integration is supported by appropriate storytelling that highlights its overall impact on the company [6]. Furthermore, it ensures the consideration of the end-to-end process context for innovation, even if it pertains to a sub-process. The result is a focused and impactful digital transformation initiative within manageable boundaries.

Figure 4 summarizes the utilization of process management to operationalize design thinking for the purpose of delivering process innovation.



**Figure 4: Process Management to Operationalize Design Thinking for Process Innovation**

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The transparency created by BPM can be harnessed to facilitate informed out-sourcing decisions, while ensuring that vital core processes remain in-house. This guarantees that initiatives for process innovation and digital transformation remain centered on the organization's core capabilities [6][18][19]. The establishment of relevant partnerships can foster inventive inter-enterprise processes, thereby fostering collaborative innovation [3].

The discipline of BPM, embodied through the process of process management, encompasses the complete lifecycle of a business process—from design and implementation to ongoing execution and control [20]. In this way, it pinpoints the necessary actions for process innovation realization and organizational governance, ensuring continuous adjustments to the resulting business process as needed. Employing suitable process management tools, such as modeling, mining, analytics, or prioritization tools, further enhances process governance and the overall efficiency and dependability of the entire process management cycle [21].

# 2.2 Process Innovation in Practice

Now, let's explore a practical example of process innovation. A prominent biologics company faced a challenge: an escalating number of products couldn't be shipped due to compliance issues. Strikingly, 99% of these issues didn't pertain to the products themselves, but rather to incomplete or inconsistent documentation. The consequences were substantial, impacting cash flow and revenue. Despite continuous process improvement efforts, including regular Kaizen events, the desired outcome remained elusive. A more profound process innovation was imperative.

Relevant business processes were identified by scrutinizing the company through the Quality Assurance (QA) lens. This approach pinpointed the touch-points with QA where compliance documentation issues surfaced, leading to the identification of the underlying processes—a subset of the broader supply chain process.

The initial solution involved elevating these processes to the next level through a comprehensive digital transformation, leveraging an automation platform and a document management system. This envisioned process innovation would effectively eradicate the identified issues. However, the implementation of this new process would take a minimum of 8-12 months. Urgent results were required. Thus, an intermediate process scenario was devised to swiftly address the challenges.

Executing this agile approach involved adapting a successful practice from the production environment: employing "digital checklists" and tablet computers within the overarching business process. This approach marked a significant departure from the prevailing reliance on employee knowledge and manual activities to resolve compliance issues. The outcome was the development and integration of a straightforward digital compliance tool into the relevant processes, achieving faster results and paving the way for the larger transformation. Figure 5 provides a glimpse of this process innovation, featuring the application of the new compliance tool. It outlines the process design structure, omitting specific content due to confidentiality. The illustration underscores the focused implementation of process innovation. Process models were seamlessly integrated into the process hierarchy within the biologics company's operating model, streamlining the understanding of the changes' impact and facilitating enterprise-wide implementation.

The processes incorporating the compliance application were implemented in under six weeks. Change management and application development were guided by the process models. Within eight weeks, document-related compliance issues were halved. By the 12-week mark, these issues were diminished by 80%. This improvement yielded a substantial boost in cash flow and revenue.

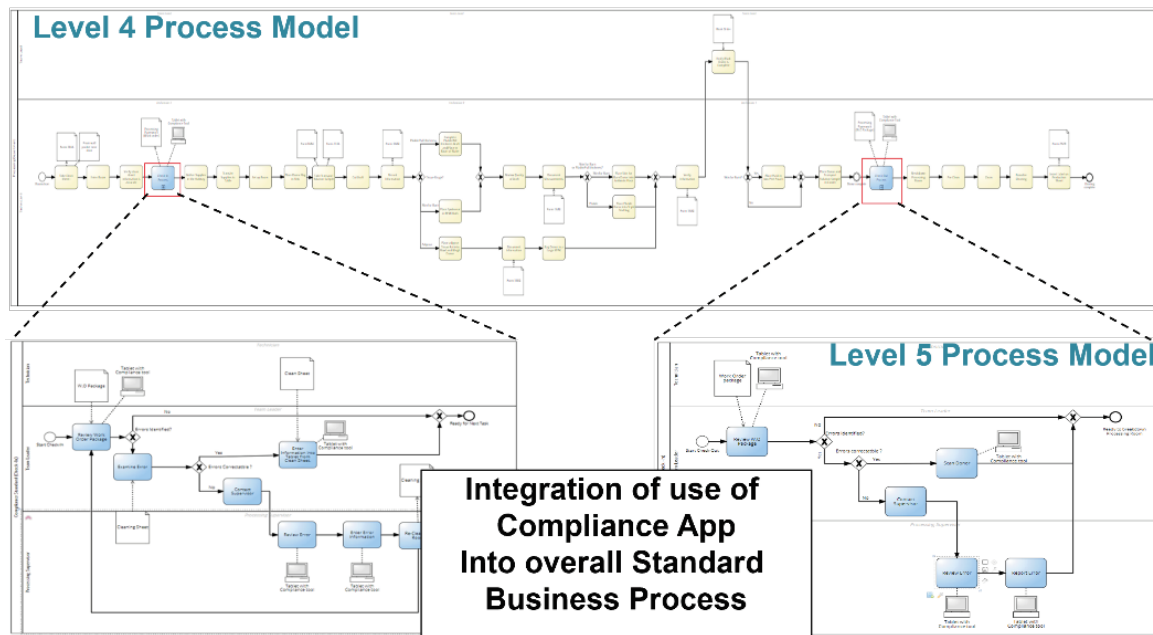


Figure 5: Process Innovation Leveraging the Digital Compliance Application

## 3 Establishing an Innovation Process

All forms of innovation are influenced by the business process that generates and oversees them: the innovation process. For systematic innovation, an organization must establish a process that yields the intended innovation as an outcome [3].

This process needs to be defined, implemented, executed, and controlled, akin to any other business process. It traverses the same lifecycle, managed through the discipline of business process management.

# 3.1 Delivering an Effective Innovation Process through Process Management

The generic structure of an innovation process is illustrated in Figure 6 [7]. This framework can also be utilized to examine other facets of innovation, not covered in this article. The process unfolds from the initiation of an innovation endeavor, progressing through "idea discovery" activities, and culminating in the execution of the innovation concept. The innovation manager identifies pertinent megatrends, forming the basis for identifying relevant innovation domains.

These domains shape the definition of the organization-specific innovation focus, which in turn guides idea generation, leveraging both internal and external resources. The innovation concepts are assessed, with the most promising ones advancing to innovation projects. These projects involve the development of prototypes and business cases. Subsequently, the innovation team determines which ideas will be introduced to the market, thus designating which ideas will materialize into tangible innovations.

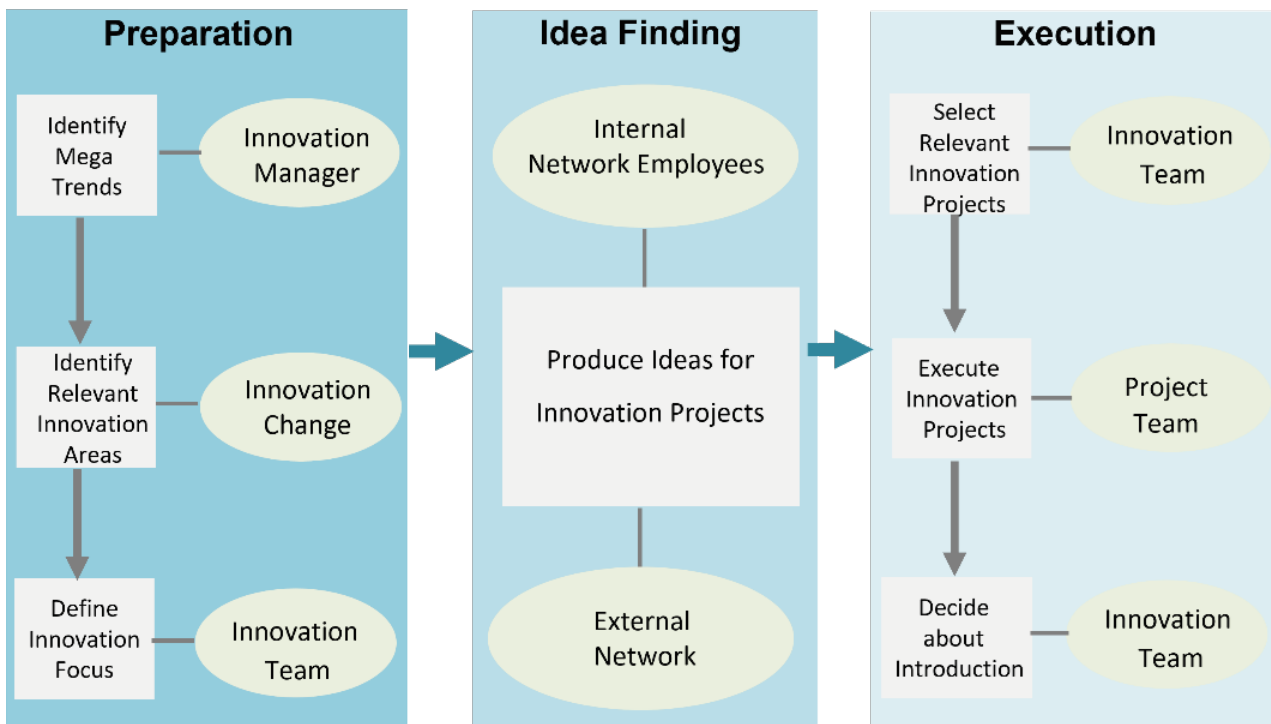


Figure 6: Generic Structure of an Innovation Process

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Agility is a key criterion for optimizing the innovation process, alongside quality and efficiency. It encompasses various innovation domains and reduces the time-to-market for innovations, as well as associated development costs.

The discipline of BPM manages innovation processes towards these objectives by addressing four key characteristics of a high-performance innovation process:

- Process variants due to different innovation domains
- Varied degrees of freedom for individuals involved in innovation
- Emergent processes due to unknown intermediate innovation outcomes
- Inter-enterprise processes to involve innovation partners

Given that an innovation process yields new products or services across diverse areas, distinct variants of the process must be defined and overseen. For instance, a manufacturing company might create novel physical products, services centered around those products, generating new processes, and innovative software components to enable the products in a digital context. This development is facilitated by suitable process management capabilities [22].

Within the innovation process, individuals require varying degrees of freedom.

Some sub-processes necessitate high creativity, resulting in loosely defined processes to support innovation, while other segments are transactional, optimized for efficiency and compliance, thus precisely defined.

Organizing clinical trials, for instance, demands a blend of efficiency in documentation handling and initial creativity for devising new treatment solutions. Process management fosters transparency to manage the innovation process with this nuanced approach [3][20].

The outcome of an activity within the innovation process can trigger different subsequent steps. Consequently, in certain segments, the process cannot be immediately fully defined. These sub-processes constitute emerging processes that are defined just prior to execution. The BPM-Discipline offers the approach to manage this emergence [23].

Distinct innovation domains, as well as the emergence of unforeseen tasks, often necessitate partner involvement in the innovation process. Partners contribute expertise, bridging knowledge gaps and expediting efficient innovation. This gives rise to inter-enterprise business processes. Process management equips organizations with the essential capabilities to navigate this environment [3].

Digital transformation and correlated process innovation reap benefits from a well-structured innovation process. It yields digitally enabled products, seamlessly integrated into digital processes as part of an "Industry 4.0" manufacturing approach [24]. The innovation process also facilitates the identification of digitalization opportunities and triggers relevant process-led transformations.

## 3.2 The Innovation Process in Practice

The previously mentioned biologics company also opted to leverage the discipline of BPM to revamp the development and commercialization of their new products and associated services. The principal objectives of this innovation process transformation encompassed:

- Enhancing planning accuracy
- Amplifying predictability
- Reducing cycle time and accelerating time-to-market for products
- Elevating the count of successful innovation projects

- Establishing process transparency to accommodate various innovation domains
- Ensuring adherence to compliance standards
- Delivering heightened flexibility

Of utmost significance was achieving predictability in the launch dates of new products and services, aiming to establish and fulfill appropriate market expectations. This objective posed challenges due to several factors, such as the requirement for early insights into new equipment essential for product manufacturing, and the extensive range of products and associated services.

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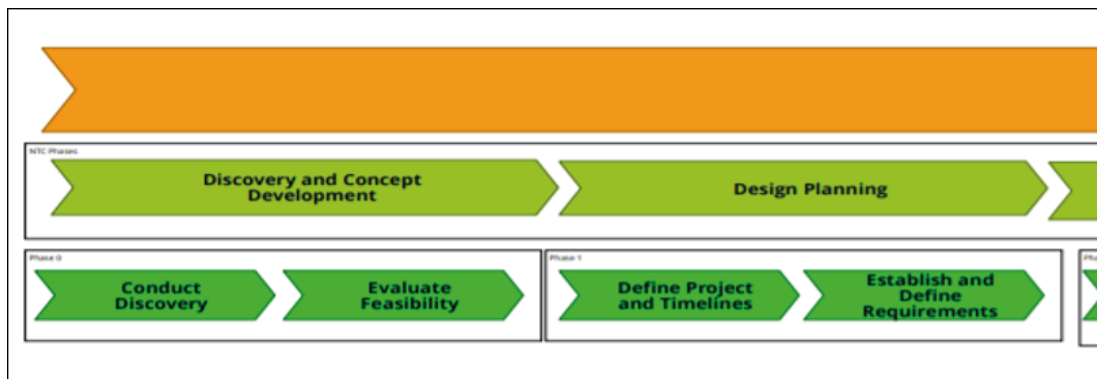
### Realizing the Potential of Digital Transformation

Analyzing the existing process proved intricate due to numerous process variants and differing perspectives from various stakeholders. Employing a top-down approach and identifying a 4-level process hierarchy aided in capturing and analyzing distinct sub-processes. This analysis unearthed 19 improvement opportunities, with four of the most pivotal ones highlighted:

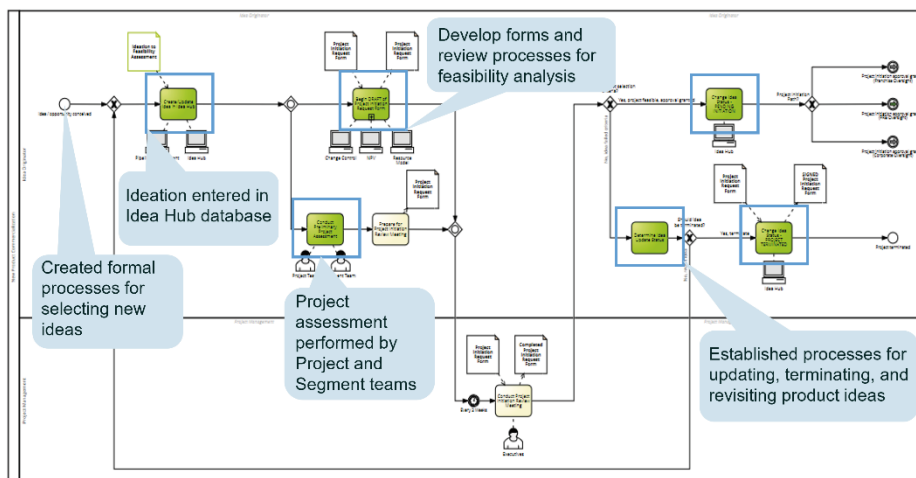
- Eliminating bottlenecks in identifying promising ideas for development
- Conducting early feasibility assessments for equipment
- Ensuring comprehensive product characterization before design freeze
- Formalizing requirements for manufacturing process adjustments

A top-to-bottom process hierarchy was meticulously devised, streamlining the systematic realization of improvement opportunities within different sub-processes. Each sub-process underwent tailored enhancements, aligning with the identified opportunities and overarching goals. Crafting the process designs at the "task level," the most granular level of detail, facilitated efficient delineation of "value packages" or manageable realization projects. Figure 7 depicts a portion of the transformed innovation process hierarchy.

An excerpt of the to-be process model at the task level is depicted in Figure 8, showcasing several pertinent changes. The envisioned process embodies an elevated level of digitalization within the innovation process, particularly in areas like the management of idea collection and selection.



**Figure 7: Hierarchy of the To-Be Innovation Process (Excerpt)**



**Figure 8: Process Model of the Innovation Process on Task Level (Excerpt)**

## ▼ Driving Innovation through Process Management:

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As the realization projects unfolded, a process governance approach was formulated to facilitate the essential capabilities while upholding efficiency, quality, and compliance requisites. This approach was attained through the consistent utilization of process models, ensuring process transparency and delineating distinct responsibilities and accountabilities. The formulation of key performance indicators facilitated the value-centric management of the process, driving the attainment of the specified objectives.

Following six months of implementation endeavors, initial enhancements in terms of predictability and cycle times were quantified. The process owner now continuously refines the developed process models to accommodate fresh in-sights and to enact necessary modifications, rendering the innovation process agile. It adeptly responds to the ever-evolving demands of the organization.

# 4 Status and Future Developments

Business process management has assumed an increasingly vital role in innovation initiatives, particularly amplified by the surge of digitalization. Process innovation, acting as the bedrock for disruptive business models and the establishment of new enterprises, has ushered in transformative processes that recon-figure the manner in which organizations deliver value. This achievement is facilitated through the operationalization of design thinking via process management. The research outlined in this article underscores the significance of an empathetic approach, exemplified by stakeholder journey maps, knowledge transfer across distinct domains utilizing process reference models, nimbleness via the implementation of process scenarios, and the cultivation of a comprehensive narrative through embedding the process within an operational model and its structural framework.

Moreover, BPM holds a pivotal role in orchestrating a company's innovation process, governing the genesis of innovative solutions encompassing novel products, services, and processes. It navigates the unique facets of an innovation process, encompassing the management of process variants prompted by varying innovation domains, facilitating the delineation of varying degrees of freedom for stakeholders engaged in innovation, adeptly steering emergent processes stemming from enigmatic interim innovation outcomes, and enabling the orchestration of inter-enterprise processes involving innovation partners.

Process management imbues innovation with agility, facilitating prompt adaptation to evolving demands of the business landscape. This is facilitated by agile process innovation and astute management of the innovation trajectory.

Given that digital transformation capitalizes on business processes to deliver its value, process innovation enabled by adept BPM emerges as a pivotal cog in realizing desired business benefits through digitalization. A well-structured innovation process begets the constituent components for digitalization endeavors, including the creation of novel digital products. As a result, innovation fostered by process management has solidified its stance as a bedrock of successful digital transformation, facilitating the attainment of optimal business potential from digital technologies, flexibly aligning their deployment with organizational imperatives.

The burgeoning imperative for innovation propelled by process management underscores the need for further research and advancement in this domain. Consider the following avenues for exploration: While this article lays out pivotal techniques to drive process innovation, this approach can be refined and operationalized further. A reference model for the innovation process would serve as a pivotal stepping stone and catalyst for transforming this critical business process. The innovation process mandates dedicated governance to uphold the requisite degree of agility. External vantage points often stimulate process innovation, an aspect that can be concretized through stakeholder journey maps. Conventionally, single journey maps that scrutinize a process from a solitary viewpoint are employed. However, many scenarios necessitate amalgamated perspectives, as furnished by customer and employee journey maps. The integrated utilization of journey maps and their interlinkage with foundational processes stands as a promising domain for future exploration.

In the dynamic digital milieu, agile innovation underpinned by process management assumes an escalating significance. Every organization must confront this facet, with the discipline of process management evolving into an indispensable catalyst for systematic and efficient innovation.

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# About the Author

## Dr. Mathias Kirchmer

Dr. Kirchmer is an experienced practitioner and thought leader in the field of Business Process Management (BPM) and Digital Transformation. He is Managing Director of Scheer Americas, previously BPM-D. He co-founded BPM-D, a consulting company focusing on performance improvements and appropriate digitalization by establishing and applying the discipline of BPM. Before he was Managing Director and Global Lead of BPM at Accenture, and CEO of the Americas and Japan of IDS Scheer, known for its process modelling software and process consulting.

Dr. Kirchmer has led numerous transformation and process improvement initiatives in various industries at clients around the world. He has published 11 books and over 150 articles. At the University of Pennsylvania and at Widener University he has served as affiliated faculty for over 20 years. He received a research and teaching fellowship from the Japan Society for the Promotion of Science.





## ABOUT SCHEER AMERICAS

Scheer America excels as a leading authority in Value-driven Business Process Management. Leveraging our profound knowledge of process management, we empower organizations to attain swift and dependable outcomes. Our expertise lies in connecting business strategies with processes and improvement initiatives to precisely target and realize value, all while establishing a sustainable process management discipline. Through our comprehensive solutions, we enable effective process and data governance, implement process modeling, repositories, and process mining utilizing cutting-edge tools.

Scheer America provides invaluable assistance to organizations operating in diverse industries including Financial, Health, Manufacturing/Technology, Consumer Goods, and more, facilitating their journey towards optimal Process Performance and Digitalization. By establishing and implementing business process management capabilities, we facilitate rapid process improvement and transformation, effectively prepare for intelligent automation, develop stakeholder journey plans, and establish a robust process management discipline. Our consulting and education solutions offer the necessary guidance, ensuring the right organization, governance, and process management tools are in place, including modeling and mining software.

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