

Specific Process Trends in 2017

Base on agnostic and vendor neutral research with the Global University Alliance and consensus with the key authorities and thought leader, we agreed on the following emerging process trends (figure 1) that will influence the future of how organization will work and apply process, these trends comprise of:

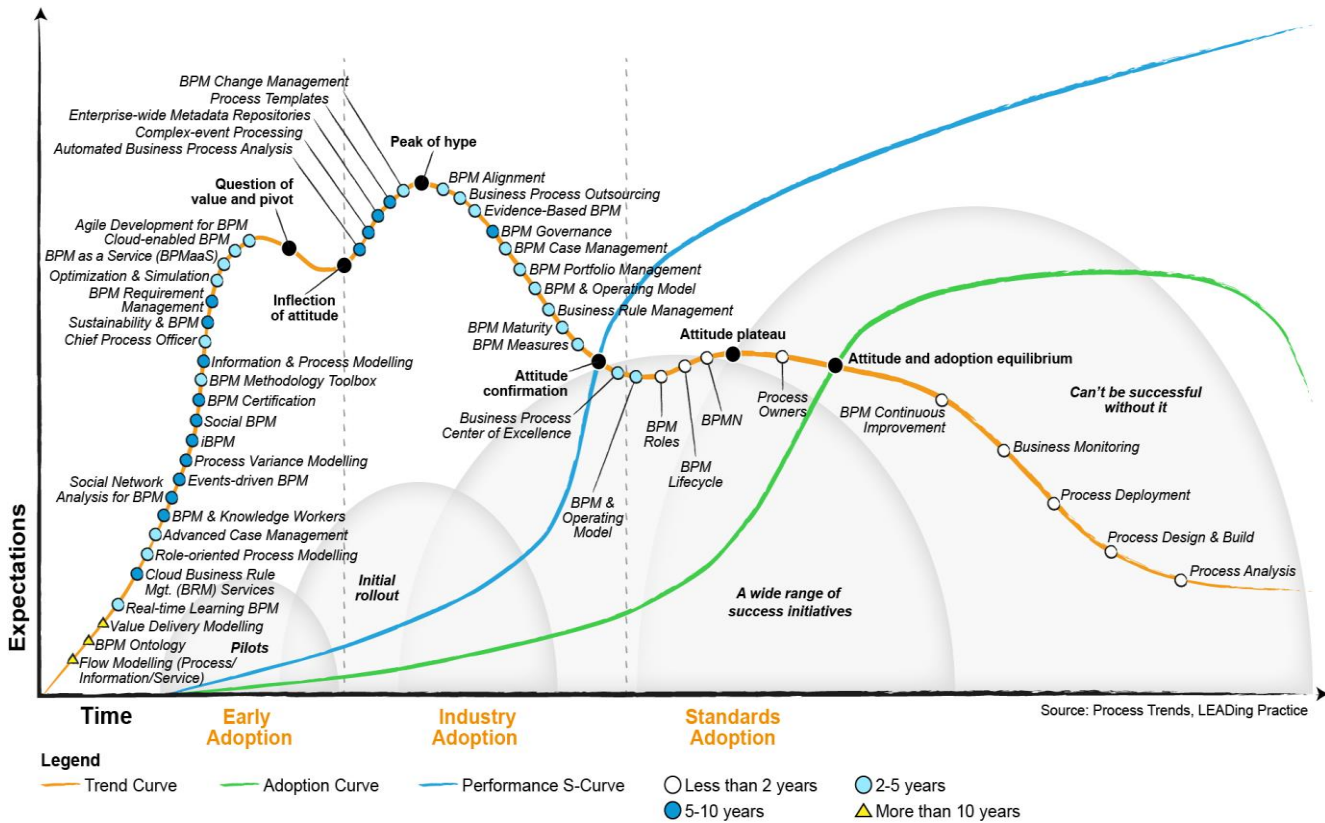


Figure 1: Business Process Trends.¹

Early Adoption

Trend phase: Pilots to Initial Rollout
Benefit rating: Very High

Market penetration: Low
Investment required: High

Maturity: Emerging
Risk: Very High

Characteristic: A potential trend breakthrough kicks things off. Early proof-of-concept stories and media interest trigger significant publicity. Often no usable products exist and commercial viability is unproven. Early publicity produces a number of success stories—often accompanied by scores of failures. Few organizations take action; many do not.

Trends are less than 5-10 years from mainstream adoption. Requires high level of investment, high-risk with the potential to deliver core-differentiating aspect.

Business Performance Impact: Early Adoption invest to take advantage of the opportunity and develop LEADing Practices. The LEADing Practices define and strengthen competitive advantage, innovation and efficiency in the core differentiating competencies with focus on the Revenue Model and Value Model. They are called the outperformers – being the first to take advantage of the new emerging trends and thereby outperform the market.

¹ LEADing Practice Business Process Reference Content #LEAD-ES20005BP

Early Adopter Of The Process Trends:

1. **Extended Flow Modelling (a part of xBPMN).** Next generation of Business process modelling will benefit from the evolution of modelling approaches as currently being advanced in architecture and engineering, enhancing a structured way of thinking, working and modelling. Learning from other principles enables both reuse of models as well as standardization of the various concepts. What is especially relevant is the interlink between process flows, information flows and service flows. Organizations realize the need to model the various flows separately, but also together. We already see the first technology enabling such modelling, see example from iGrafx: www.igrafx.com/solutions/business-challenges/process-modeling
2. **BPM Ontology.** Many BPM and or process frameworks, methods and approaches like LEAN, Sig Sigma, BPR, TQM, Zero Defect, BPMN, BPMS etc., have their own vocabulary. Each of these vocabularies has its own definition of terms like business process, process step, process activity, events, process role, process owner, process measure or process rule. This variety of definitions might hamper communication. On the one hand, the same word might have different meanings in different frameworks, methods and approaches (i.e. homonymy). On the other hand, different words might have the exact same meaning in various frameworks, methods and approaches (i.e. synonymy). When communicating, people are often unaware of homonymy and synonymy and expect the same words to have the same meaning and different words to have a different meaning, which might lead to miscommunication between people with different backgrounds (i.e. with training in a different framework, method or approach). What is needed is a shared vocabulary (e.g., a folksonomy), that ensures a consistent use of terms. In a weak interpretation, such a folksonomy could be used as a central ontology to which all framework, method and approach vocabularies are mapped to determine which words have the same and which words have a different meaning in different frameworks, methods and approaches. In a strong interpretation, such a central ontology that defines fundamental process concepts, and the relations between them (e.g., the ability to define a sequence of process steps), could be used as the reference vocabulary to describe, document and structure process knowledge. Both interpretations would profit from a validated reference ontology. Hence, the need for a BPM ontology that can be applied within the area of process modelling, process engineering and process architecture is clear.
3. **Value Oriented Process Modelling,** often referred to as Value Oriented Process Design or Value Delivery Modelling emerged in an era focused on the automation and optimization of business processes in the context of established business organizations. As such, they tended to focus on process flows within and between organizations, typically within individual lines of business. As the scope of automation expanded, processes were linked electronically, but tended to preserve existing organizations and relationships, optimizing processes within lines of business, optimizing processes at an operating level. Value planning, value identification, value creation and value realization are not really methods and approaches that are used by process teams today. However advances in technology, global competition and continuous business change have increased the need for business agility with a focus on creation of customer value and optimization of business processes across the enterprise. This requires the ability of top management to analyze and guide the design of the business focusing on customer value, consolidating sharable capabilities, and linking business strategy to business

transformation through a shared understanding of the desired business design and key objectives. Also in this area we see technology move in this direction, where Value delivery Modelling (VDML) has been adopted as an Object Management Group (OMG) modelling standard and is expected to be available in 2015.

4. **Real-time Learning BPM.** Organizations around the world struggle to crack the code for improving the effectiveness of managers, salespeople, scientists, and others whose jobs consist primarily of interactions — with other employees, customers, and suppliers — and complex decision making based on knowledge and judgment. As process and BPM adoption rise in organizations, enabling processes and continuous improvement around the knowledge workers and similar employees working in complex processes is a new challenge. Business processes are the heart of an organization and the support of the business processes by application systems is central for each organization. Introducing new applications requires employees to get trained and educated for them, often by multi day presence trainings in advance.

When the software is rolled out organization wide, it is expected that the cost and time savings will materialise in short time. However, user errors slow down the efficiency of the new software and with it the execution of the connected business processes. Although they have been trained, employees are not able to use the new technology efficiently. Even though knowledge workers are often the core of many organizations, the enablement of these employees with specific guidance at their point of need in a manner consistent with Kaizen principles of quality and continuous improvement are frequently very poorly enabled. In this article we show how Real Time Learning based on Business Process Guidance can help employees to get along better with new processes. It can be expected that Real Time Learning through Business Process Guidance will grow in importance in the future:

- More changes: Processes and applications will change even more frequently in the future, triggering a need for training and support among the employees using them.
- More collections of applications: Instead of one large system installed and configured on premise, we will often see a collection of applications provided as a service out of the cloud. This asks for process guidance that works across applications and that can be configured and equipped with content by the user organization.
- Social networks will be used more at work: We will also see more knowledge sharing and peer support using social network technologies at the workplace. Social BPG will provide users with access to the social network communication channels and will help to filter and display only those messages, that are relevant based on the process and application context of the user.
- Users will influence provision of content: Statistics from software usage and user feedback will become an important source for content authors to provide additional content and improve the existing support content in the BPG system
- BPG will extend beyond the office: Mobile devices will bring process guidance to new areas like repair and maintenance of machines. First prototypes are built in research projects where information and work instructions will be displayed with augmented reality techniques on top of live pictures taken through the built-in camera. Users can call experts that support them directly, seeing the machine in real time through the camera.
- Business Process Guidance already is a good concept to support introduction of new processes and applications and that its potential will grow in the future as it enables the organization.

- 5. Cloud Business Rule Management (BRM) Services.** Business rules are actionable elements of business policy; they are implicit and explicit business directives that define and describe guidance for taking a business action. Externalizing policies and rules creates a need to manage them as an important business resource, and business rule management has emerged as a structured discipline guiding business rule definition, categorization, governance, deployment and use throughout the business life cycle. BRM is supported and enabled in this need to manage rules as an important business resource by two technology types: Business rule engine (BRE), BRM system (BRMS). A BRE is a core software that executes business rules that have been segregated from the rest of the application logic, matching a collection of rules (the rule set) against a set of given conditions to determine which rules apply. A BRMS is a comprehensive suite — built around a BRE - that facilitates the creation, registration, classification, verification, deployment and execution of business rules. BRMS products constitute a modern incarnation of BRE products. A critical distinction between a traditional BRE and a BRMS is that a BRMS incorporates support for seven capabilities: Execution engine (the BRE), Repository, Integrated development environment Rule model simulation, Monitoring and analysis Management and administration Rule templates. When BRMS or BRE functionality is provided as a core capability hosted in a cloud, it is called "cloud BRM services." Cloud BRM services are a type of platform as a service (PaaS).

Cloud BRM services can be obtained either as a separate offering or as a feature of a business process management PaaS. The primary business impact of cloud BRM services will derive from the business impact of BRM proper; cloud BRM services are just an alternative delivery vehicle for a concept (BRM) that can increase quality decision making when properly understood. Even though BRM concepts have been prevalent in certain industries (for example, financial services) and in well-documented processes (for example, underwriting), there is no inherent limit to BRM's industry and process reach. Therefore, cloud BRM services have a similar potential reach, with the emphasis on "potential."

- 6. Role-oriented Process Modelling.** Traditional BPM and requirement concepts are insufficient for today's EA, Business Model and Value-driven approach to organization operational execution and strategic management whereas requirements must support, link and be decomposed from top objectives down to technology requirements. Consequently, Business Processes are architected and designed as a system of activities reflecting and supporting achievement of organization's goals, strategies and objectives. All of these can be classified as high level business requirements.

A Role-oriented Process Modelling approach and discipline is requires to create process-centric organization these high level requirements must be decomposed, layered, and used to identify, model, architect, design, implement and operate cross-functional process scenarios each with a defined purpose, value-driven activities and measurable outcomes (performance indicators) related to needed business objectives (high level requirements). All of these are functional capabilities, which are also requirements.

- 7. Advanced Case Management.** This is at the nexus of BPM and enterprise content management usage scenarios, and involves a mix of collaborative, unstructured and structured processes. We see in multiple organizations, requirements beyond traditional process modelling, among others it is about empowering participants in a process, by removing context tunnelling and providing better support for exception handling, the ability to control flow and cross flow information visibility. Organizations around the world have therefore start to invest in case management. The information model includes both data and

documents, so changes in values, metadata, and lifecycle state can all be used to model the case.

8. **BPM Knowledge Worker.** Introducing new applications requires employees to get trained and educated for them, often by multi day presence trainings in advance. When the software is rolled out organization wide, it is expected that the cost and time savings will materialise in short time. However, user errors slow down the efficiency of the new software and with it the execution of the connected business processes. Albeit they have been trained, employees are not able to use the new technology efficiently. Organizations are looking for better ways to provide the needed knowledge to their employees, at the time of need. A new approach is real time learning, where information on the business process is presented to users automatically together with support on using software applications. It is gaining stronger acceptance in the market as a supplement or replacement to traditional software rollout training.
9. **Social Network Analysis for BPM.** Definition: Social network analysis (SNA) tools analyze patterns of relationships among people in groups. They are useful for examining the social structure and interdependencies (or work patterns) of individuals and organizations. SNA involves collecting data from multiple sources (such as surveys, emails, blogs and other electronic artifacts), analyzing the data to identify relationships, and mining it for new information (such as the quality, or effectiveness, of a relationship). Organizational network analysis is a form of SNA that examines the information flow among individuals, and it depicts the informal social network — typically, of groups working in the same enterprise. Value network analysis (VNA) examines the deliverables exchanged among roles — typically, groups of people from multiple organizations who need to work together. SNA scans social media to identify influential people, associations or trends in the collective.
10. **Evidence-Based BPM.** As organizations gain awareness of the latent business value locked in their backend systems' data stores, evidence-based BPM will become a day-to-day management tool rather than the subject of ad hoc initiatives triggered by punctual process performance issues. This shift will lead to the emergence of evidence-based process governance frameworks, allowing managers to effectively set up and steer long-term evidence-based BPM programs that deliver measurable value via continuous process improvement. In turn, increased evidence-based BPM maturity will spawn the deployment of real-time and predictive evidence-based BPM methods that will allow process stakeholders to respond to fine-grained process performance issues as they arise or even before they arise. In other words, evidence-based BPM methods will push the boundaries of contemporary business process monitoring practices by extending them with real-time predictive analytics. Evidence-based BPM will also enable continuous process auditing, whereby compliance violations are detected on a day-to-day basis, in contrast to contemporary post-mortem process auditing approaches. Combined, these developments will bring BPM to the level of modern data-driven marketing approaches. Ultimately, every business process redesign decision will be made with data, backed by data and continuously put into question based on data.
11. **Process Variance Modelling.** Business process variance should be seen as a viable way of allowing small differences in the way the core business functions are performed. It is advisable to only introduce variation in those business processes that represent the core-differentiating competencies of the organisation. This will allow an enterprise to develop its own practice and deliver unique value to clients and other stakeholders. For non-core and core-competitive competencies, best practice and industry best practice should suffice.

Business process variance can be modelled three different ways, depending on what is expected thereof. If the aim is only to capture slight differences in the inputs, outputs, controls and mechanisms of processes, it will be adequate to only create variances at the process activity or task levels. However, if the actual steps of the variant processes are different, true process variances can be used by presenting all the variances together in a single model or document or separate distinct process may even be developed.

The modelling approach taken has a major impact on the management of the business processes and variances. When certain commonality between the master process and its variants is important, additional business process management techniques are necessary to maintain this traceability. This will require that a great deal of attention is given to establishing and maintaining the traceability links between the variants. Separate and distinctive processes introduce more process content, but standard business process management is applied because traceability to the master process is unnecessary. When introducing process variance, caution should be taken and the amount of variation should be minimised. If the development and modelling is not sufficiently controlled, the amount of additional and unnecessary content will very quickly become unmanageable. However, if it is done well, it is an excellent way for organisations to acknowledge and embrace its unique value enablers, without losing out on the many benefits of business process modelling and management.

12. **Intelligent Business Process Management (iBPM).** Recent evolution towards iBPMS strategies and technology is the inclusion of more sophisticated reporting capabilities within the BPM environment itself. This is both enabled and in many way necessitated by the greater flexibility of the architectures introduced with the BPM suites that provide BPM Phase Two capabilities. With these environments, the ability to support non-sequential, goal-driven models is greatly increased, requiring more feedback (reporting) to enable successful execution of this type of less deterministic process models. With few exceptions, reporting on process events and business performance was previously done only after a process had executed, or otherwise within a separate environment disjointed from the process. This obviously prevented any opportunity to impact the direction or a process, but was based on a limitation of the management process as well as system and software architectures. Specifically with regard to BPM, process models were most commonly defined as proprietary structures, and in many cases compiled into software. Thus, changes either required bringing down and recompiling an application, or were otherwise limited to discrete points in the process (such as exceptions and yes/no decision points).
13. **Social BPM.** This is a concept that describes collaboratively designed and iterated processes. These processes mirror the way work is performed from a "doer" perspective and experienced from a "receiver" perspective. Social business process management (BPM) is a concept that describes collaboratively designed and iterated processes. These processes mirror the way that work is performed from a "doer" perspective and experienced from a "receiver" perspective to harness the power of continuous learning. Social BPM resides at the intersection of process and collaborative activity. It is supported by BPM and social software that makes process design more visible and holistic. This includes the ability to support all process activities — such as collaboration, social networking, collective activities and communications — that are a natural part of "work" to create a holistic process design that is open to influence and change from a variety of perspectives (for example, from customers, partners, suppliers and employees). The value of social BPM is that it connects structured and unstructured knowledge-centric tasks by understanding the needs of each user (internal and external) and

combines social technologies to achieve the process outcome. As such, social BPM moves BPM closer to "design by doing."

In practice, there are two distinct implementations of social BPM, one for process design and the other for process iteration. Social BPM design enables a group to collaboratively work on the design of a process. Social BPM iteration is the act of harnessing knowledge about how the process is experienced while it is being performed, and acting on this to change the process to better reflect preferences and shifts in the user experience. The BP director will be the driving force to integrate social BPM techniques into process analysis and design.

14. **BPM Certification.** The need for skilled and experienced personnel to lead and participate in BPM activities is clear. The BPM profession requires a vendor neutral and agnostic Process eXpert and Process Architect certification with cross-disciplines e.g Business Process Principles (BPR, Six Sima, TQM, Lean, etc), BPMN 2.0, eXtended BPMN, Process Monitoring, Value-based Process Modelling, Continuous Improvement Approach, Architectural Layer Modelling (Business, Application, Technology). The eclectic nature of that skill and, by definition, the individuals who possess it, is also clear. Given the diversity of skills and experiences needed, would recruiters be better off looking for someone who is already "certified in BPM"? Certification in BPM, as discussed here, does not refer only to certification in methodologies used in BPM (such as Six Sigma or IT Infrastructure Library, ITIL) — nor in a vendor-specific tool or methodology. Instead, we're referring to more-generic, broadly scoped training in BPM as a discipline. There is growing interest in this type of certification, and a number of organizations have established their own distinct approaches to curricula, exams, assessments and certifications for BPM.
15. **BPM Methodology** or BPM Methodology toolbox. These serve as solution accelerators and often feature commonly accepted practices for selected business processes. Process templates are becoming alternatives to traditional applications in certain process domains and industries, particularly when these process templates are based on an ICE, such as a BPMS. Today, there is no unified BPM methodology. Instead, there are discrete methodologies that can be applied depending on the change or improvement being sought. The BPM methodologies apply across business process improvement (such as Six Sigma, lean thinking, Kaizen, Rummler-Brache and business process re-engineering), application development (such as scrum, feature-driven development and extreme programming), project management and implementation (PRINCE2, PMBOK and vendor-specific), and change/transformation management. A growing number of BPM vendors provide methodologies that range from project implementation to broader business process improvement (BPI) approaches. Consulting and system integration vendors are also incorporating BPM methods into their service delivery methodologies. However, choosing the right an agnostic and vendor neutral overachieving approach to methodologies that interconnect with all of them is required to work across solid, method. Choosing the most relevant to the particular activity that the business focuses on. BPM methodologies initially operate with performing and driving BPI projects and rely on expert knowledge from seasoned BPI practitioners to be effectively used.
16. **Information & Process Modelling (IPM)**, also called the anti-pattern information modelling. The need to support information models with a more flexible process execution by avoiding well known restrictions present in conventional BPM and workflow technology. The trend around information modelling in the market is about the challenge around process and information modelling and how one can produce adequate 'as-is' and 'to-be' process models that incorporate information models. The Anti-pattern Information modelling is often

incorrectly understood to be only concerned with data modelling. The answer to this is not an easy and as discussed in the xBPMN chapter is one of the biggest challenges around the mistake that most BPM and BPMN concepts do not consider the process in its full context.

A process always has a context, not considering its context to the purpose and goals perspective of the business is devastating. It keeps away the context that so many are looking for, the value perspective. Not considering the context to the business competencies can have the effect that nobody knows which processes are a part of the core differentiating competencies and which support the core competitive competencies of the organization. It doesn't matter how much we analyse the processes in itself, they could not reveal this information. The same is for services, while we all know that activities i.e. processes are needed to create services, most organizations don't know which processes creates what kind of service. Therefore their processes models are not considering the most vital aspects of the various value offerings to the consumers of the processes e.g. employees and or customers. Modelling the processes without considering its relevant context results in process models the executives and many others from the business or even architecture teams can't use. To sadly we see to many BPM programs/ projects within organizations that limit their as-is' and 'to-be' process models' in this way. In order to structure the x-BPMN process groups, we will categorize the relevant process context into Layers.

17. **Chief Process Officer** - We increasingly see, in organizations, a new top management position emerging that we call: "the Chief Process Officer (CPO)". The CPO oversees the business process management-discipline of an organization, which creates significant value by moving business strategy systematically into people and IT based execution, at pace and with certainty. The CPO works as a "Value Scout" across organizational boundaries building an agility network for an organization. The need for this development is driven through the digitalization in many companies. The CPO makes sure that the information technology is used in a way that produces the best business value. In a time where most of the technology moves to the cloud, the business processes become a critical asset of an organization. The CPO manages these process assets using an outcome-driven process management discipline.
18. **Sustainability & BPM.** The management of organizations has experienced some trends. First of all is a stronger focus on delivering value with a more comprehensive definition of it, encompassing not only financial aspects but also other stakeholder's interests that pressure in building more sustainable societies. Second is process management as a way of improving organization's performance. And third is the pervasiveness of IT both as a resource and an enabler. It's clear, then, the need for organizations in becoming more sustainable -from an economic, ecological and social point of view- through the management of processes and with a strong IT bend. Therefore, a growing trend is trying to codify and guide through the specific practices that, by linking strategy to operations, drive joint improvements in shareholder returns, the ecological footprint and social impact, ideally from a lifecycle viewpoint.
19. **BPM Requirement Management.** Whether it is for business innovation, transformation or technology development, Requirements Management is the most widely used concept influencing design of anything in any industry. Consequently, it also influences designs of business processes both Functional and End-to-End Scenarios ('Our Enterprise is our processes'). As a result it impacts how well the organization operates. Today BPM Requirements Management has become critical top for any organization heavily influencing

quality of its business designs and corporate results. Significance of the requirement concept to any organization lies in the fact that it is a key information carrier, interpreter, bridge to and translator of desired enterprise goals with process and technology realization designs, and performances using decomposition and mapping of high level requirements into a network of more granular requirements. It applies throughout all pertinent types of Enterprise Layers (Business, Process, Application, Data, Technology, Organization, Governance, etc.). In essence, requirements exist everywhere in any organization within each layer of its architecture and drive everything organization does. Requirements are not standalone entities. They relate, decompose or compose into other types or more granular requirements. Requirements are dynamic. They change, are impacted by changes to other requirements, or are added as new by business or technology. Requirements must therefore be managed continually.

BPM Requirements Management requires a standardized terminology, build common understanding and make available the standardized and integrated BPM requirement templates. Enabling the users of the BPM Requirements Management Body of Knowledge to:

- Identify the relevant objects to which the requirements have a relationship.
- Decompose the business, application and technology objects into the smallest parts that can, should and need to be modelled, and then compose the detailed requirements to the objects entities before building them (through mapping, simulation and scenarios).
- Visualize and requirement relations to the specific object with the requirements templates/artefacts by using the requirement maps, matrices and models.
- Reduce and/or enhance complexity of requirements modelling, requirements engineering and use of requirements within architecture in applying the decomposition and composition standard
- Model the relevant requirements through the objects within the Enterprise Layers.
- Add Value perspective to Requirements Management
- Provide a structured Blueprinting and Implementation that has specific phases for incorporating high level and detailed business/application and technology requirements.

20. Optimization and simulation — This enables organizations to experiment with a process, quickly determine process alternatives and identify which alternatives are likely to produce the best outcomes under certain conditions. Optimization and simulation tools are useful technologies to support, in essence, process experimentation. These tools use a more scientific approach to process design and implementation. Optimization and simulation tools for BPM use an explicit process model (that is, an imitation of a business process) and enable the user (that is, the experimenter) to experiment with the process over time. Optimization and simulation allow the experimenter — perhaps a business process analyst — to see how the process holds up over time or in response to specific events. Does it bog down? Does the process break? What might we predict based on past behavior in production? Are there enough resources to handle all the calls, loans, claims and other demands? Should I shift resources, and are they available? In other words, optimization and simulation allow you to run the process as if it were running in the real world. However, unlike processes running in the real world, if the optimized and simulated process breaks, no one gets hurt. It is all a simulation and it can be re-optimized and rerun. Using simulation and optimization tools, the assumptions, constraints and scenarios of a process context can be verified with more certainty before the process model is actually deployed in the real world.

Clearly, a prerequisite for performing business process optimization and simulation is that you must have an explicit business process model — the "imitation" mentioned in the definition. Business process modelling is a technique to graphically express how business processes and associated strategies are interrelated. Process modelling is used to better understand and diagnose the business process, as well as the behavior of all the participating constituents within the process. While process modelling is generally a static representation of the business process under study, simulation adds a dynamic component to this model. This technology profile specifically reflects the use of optimization and simulation tools when applied to designing and improving business processes by using explicit process models. It does not cover constraint-based optimization (CBO) and simulation tools that are used for digital control systems, factory scheduling, transportation route scheduling and other operations research and decision management applications that are not centered on process models.

21. **BPM As A Service (BPMaaS).** Platform as a Service (PASS) gives you the opportunity to outsource your complete Business Process Management (BPM), so you can concentrate on your core business. The BPM as a service model is a service orientated solution. Explained simply, BPM as a Service (BaaS) is the outer shell of Infrastructure-, Platform- and Software as a Service (IaaS, PaaS and SaaS) example: combining all BPM services, from process analysis to real time enterprise management, to integrated on-demand services: (1) Automation of business processes, (2) Process analysis and modelling with different specifications and scenarios. (3) Process automation and process simulation using IBM Business Process Manager Standard. (4) BPM and Real-Time Enterprise Management using new intelligence methods based on the BPM Suite and Business Process Manager Standard. (5) Integration of technologies e.g. RFID and (6) Integration of mobile devices (e.g. Smartphones).

22. **Cloud-enabled BPM (CE-BPM).** BPM technologies help manage the work of a single organization or multiple organizations. Business processes are the actual work of a single organization or multiple organizations. Business processes include formally defined activities as well as informal work practices. Additionally, business processes may involve human and application activities, and they may be structured or unstructured. A cloud-enabled BPM (CE-BPM) platform is a platform for managing business processes in a private or public cloud. CE-BPM is often confused with BPMaaS and bpmPaaS. bpmPaaS refers to the delivery of BPM technology functionality as a service by a cloud service provider, while CE-BPM refers to a cloud-enabled BPM technology product. CE-BPMs are typically purchased by enterprises to run shared business process service centers in a private cloud. A vendor may use the exact same technology in its bpmPaaS and its CE-BPM. The only difference is in the delivery model. bpmPaaS is delivered as a service. CE-BPM is delivered as a product and then used to provide a public or private cloud service by an ESP or an internal IT organization. ESPs use CE-BPM as the underlying application infrastructure to deliver SaaS and business process utilities (BPUs) in the public cloud, as well as cloud-enabled outsourcing in community clouds. Providers of bpmPaaS may use their own or a third-party CE-BPM platform.

A CE-BPM exhibits cloud-enabled application platform (CEAP) capabilities (see "Gartner Reference Architecture for Cloud-Enabled Application Platforms"). A CE-BPM must include at least one of the following BPM runtime capabilities: flow management, rule management, optimization and simulation, or BAM. It may optionally include a variety of

design-time BPM capabilities, such as business process modelling and automated business process discovery.

23. **Agile development for BPM.** This represents a development methodology that is a highly accelerated, incremental approach aimed at delivering high-priority, demonstrable business value. Agile development for BPM combines management disciplines, as well as agile software development methods. The nature of agile BPM means process improvement or physical process implementation starts before the models are fully complete, avoiding the big "design upfront" problem, which delays benefits realization. Agile business process management (BPM) development methodology is a highly accelerated, incremental approach aimed at delivering high-priority, demonstrable business value. Agile development for BPM combines management disciplines, as well as agile software development methods. Agile development for BPM methods is defined in terms of values, principles and best practices, rather than overly prescriptive plan-driven processes. Lean and agile practices of collaboration, customer focus, short cycles and value delivery are applied to BPM suites (BPMSs) and BPM technologies, as well as the BPM (the process of process improvement) cycle. Agile BPM builds on the growing trends of social BPM and business process analysis (BPA) for the masses, both of which increase user involvement in process discovery, modelling and implementation. The nature of agile BPM means process improvement or physical process implementation starts before the models are fully complete, avoiding the big "design upfront" problem, which delays benefits realization.

Agile BPM methods attempt to establish a high level of collaboration among business process owners, architects and the IT organization. They also attempt to flatten the project and organizational structure, often through self-organizing teams. Agile BPM methods are based on empirical process control, which accepts requirements changes and validates project direction with short, business-focused delivery cycles. Use of agile BPM is most necessary in situations requiring frequent process change, and is particularly important for continuous process improvement use scenarios.