**Journal of Economic and Financial Studies Volume: 12 / N°: 01 (Dec 2019), p 164-180**

# The role of the information technology in the enterprise integration with Business Processes Management

# دور تكنولوجيا المعلومات في تكامل المؤسسة بإدارة سيرورات الأعمال

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Received: 18/05/2019 Accepted: 30/05/2019 Published: 30/12/2019

**Abstract:**
The enterprise integration with Business Processes ManagementBPM is a complex activity which has a great impact on key stakeholders including staff and customers.BPM is more important to have an integrated information systems that cut across various organizations as well as various functional areas. The aim o this paper is to present a developed view may be useful for recognising the concepts which may help to clarify the role of the BPM and the BPM systems in enterprise integration. They also offer a motivated method to understand and solve the problematic of BPM and BPM systems and their instruments for incorporating a company's specific functional features to assure the enterprise integration . This study concluded that the using of BPM to develop the company Processes lead to make the good integration and the good orientation of the efforts.However, the BPM solution can support the other IT tools to have a good integration.

**Key words:** Processes Management BPM, Information System IS, Information Technology IT, Enterprise integration.
**Classification JEL: L96 , O23**

**ملخص:**

تكامل المؤسسة باستعمال إدارة إجراءات الأعمال هو نشاط معقد و الذي له تأثير على الأطراف الفاعلة بما فيهم العمال و الزبائن. إدارة إجراءات الأعمال مهمة جدا للحصول على تكامل نظم المعلومات في مختلف التنظيمات و في مختلف الوظائف . هذه الورقة البحثية تهدف إلى عرض نظرة متقدمة لعلها تكون نافعة لإدراك المفاهيم و توضيح دور إدارة إجراءات الأعمال و نظم إدارة إجراءات الأعمال في تكامل المؤسسة. و هي تعرض طريقة محفزة لحل إشكالية إدارة إجراءات الأعمال و نظم إدارة إجراءات الأعمال و الياتها لتأسيس سمات وظيفية معينة لضمان تكامل المؤسسة. و خلصت هده الدراسة الى ان استعمال إدارة إجراءات الأعمال لتطوير إجراءات المؤسسة يؤدي الى تحقيق التكامل الجيد و التوجيه الجيد للمجهودات. زيادة على ذلك إدارة إجراءات الأعمال يمكنها دعم أدوات تكنولوجيا المعلومات للحصول على التكامل الجيد للمؤسسة.

**الكلمات المفتاحية** :إدارة إجراءات الاعمال ، نظم المعلومات،تكنولوجيا المعلومات، تكامل المؤسسة.

**تصنيف JEL: L96 ، O23**

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**Introduction :**

Information Technology IT has its effects on all kinds of businesses and economics, it touched all functions and levels of the Organizations, that is why it has a great importance from the modern companies and governments, it became an important element in the strategies of them. The emerging of IT technologies require a big capacity of adaptation from the companies, that is why the scientists developed a new tools and methodologies to have a good integration and assure the right uses of this technologies, and that couldnot happen without a good orientation of the Processes to achieve the main Strategy of the company. The enterprise integration for the most part have failed without using aided tools such as the BPM. However, it was soon found out that BPM could create its own integration, the problematic of this study is : How to assure the enterprise integration by using the Business Processes Management BPM?, and to answer to this question we used a theoretical framework with some purposes as follows:

- Identify the concepts related to the Business Processes Management BPM,
- Describing the meaning of the enterprise integration ,
- Examine the relationship between Business Processes Management BPM and the enterprise integration.

**I. Business Processes Management BPM :** The great evolution in the Organizational Theory practices lead the scientists to concentrate in the small fragmentations of the work.They found that they can gather some tasks in a process to do an activity andprovide a service.This approach called in the latest years Process orientation and by appearance of some approaches using this concepts such as the TQM[1], BPR[2], Six Sigma[3] and so on,led to appear the need to manage and maintain the process, that is why the BPM makes its place to do that and make the work with Processes a daily activity.

**1. BPM Concept :** BPM is a disciplined approach for treating business Processes as assets, managing their lifecycle, and seeking to improve and optimize them. Gartner defined it to be something that *provides governance of a business's process environment to improve agility and operational performance*.[4] BPM is a systemic, Structured approach to analyze, improve, control, and manage Processes with the aim of improving the quality of products and services. BPM is thereby the method by which an enterprise's 'Quality' program is carried out.[5]

**Business Process :** A business process consists of a collection of tasks or activities that are executed according to certain rules and with respect to certain goals.[6]A business process is also a collection of related business activities with specified logic for coordination between such activities and the governing norms, policies, and practices.[7]

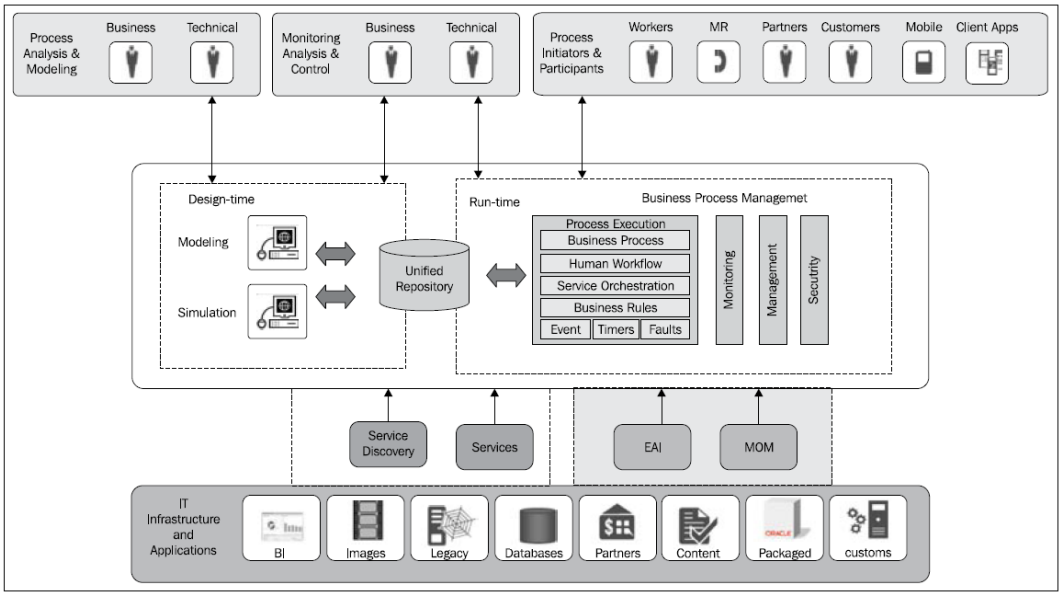
**Process definition:** In simple terms a process is a series of connected steps or actions with a beginning and an end that can be replicated.[8] A process has inputs and outputs that are *measurable* and therefore can be managed. Complex Processes often need to be broken into a number of sub Processes for easier management.[9]

**Process Management :** Processes are generally defined as sequences of tasks performed within or across companies or Organizations .[10] Process management, based on a view of an Organization as a system of interlinked Processes, involves concerted efforts to map, improve, and adhere to Organizational Processes.[11] BPM has been acknowledged to require a holistic consideration of

additional factors, such as strategic alignment, governance, methods, People, and culture, with culture being increasingly recognized as a key element in successful BPM in terms of process efficiency and effectiveness.[12]Process management is a concept that integrates quality/performance excellence into the strategic management of Organizations. Process management includes : [13]

1. Process Design or engineering: Include describing what must be done and how it is to be accomplished.
2. process definition: which requires the description of existing Processes;
3. Process documentation : After defining a process, it must be documented using a flowchart, a process map, or even a simple checklist.
4. Process analysis and control : There are many process analysis tools, including cause-and-effect diagrams, statistical process control, and trend analyses.
5. Process improvement : Process improvement may result from gradual, continuous improvement or a dramatic reinvention or reengineering of the process.

***Fig n°(0 1) : Business Processes Management***




***Source :*** *Heidi Buelow et al, Getting Started with Oracle BPM Suite 11gR1, Oracle, USA, 2010, P11;*

## 2.Brief history of BPM :

**Early Process Concepts :** Adam Smith claimed that mass production required a new Organizational form and new methods of work. In his seminal work, *The Wealth of Nations* (1776), Smith recognized that the division of labor was essential for increasing the productivity of workers.[14] In the early 1900s, Frederic Winslow Taylor published his monograph titled *Shop Management* based on his work on process management. Similar ideas were also used by Henry Ford around the same time to create efficient assembly line Processes. Over time, statistical quality controls brought significant enhancements to the early workflow systems inspired by Taylor, Ford, Gantt, and so on.[15] The business Processes originally Designed based on principles have not evolved to take advantage of the technologies we have today.[16]

**Modern Process Management Theories:** Frank and Lillian Gilbreth also used time and motion studies to improve Processes and to increase productivity. One of the world's leading experts on

improving the manufacturing process, Shigeo Shingo, created with Taiichi Ohno, many of the features of just-in-time (JIT[17]) manufacturing methods, systems, and Processes.[18] The functional Organization served corporations well from the beginning of the century to the post-war boom of the 1950s and 1960s. The happy days ended in the 1970s when the economic environment changed and corporate competition increased. Several economic factors contributed to the change in the economic environment. All of these factors created challenges for corporations built for mass production.[19]

**The First Wave: Total Quality Management :** TQM was a popular methodology for several years, but unfortunately it was not always successful. Changes that patched holes in existing Processes were nice, but the speed of business was accelerating so rapidly that it became clear that a more aggressive type of process improvement would be needed.[20] Experts in the field of quality developed many process-management concepts and tools:[21]

1. Dr. W. Edwards Deming is famous for his work in Japan in the 1950s and for theories.
2. Dr. Joseph Juran also worked with the Japanese beginning in the 1950s. Some of his theories supporting process management are Juran's Trilogy.
3. Dr. Kaoru Ishikawa, author of *guide to Quality Control,* invented the cause-and-effect diagram and taught People involved in teams to ask what caused each effect.
4. Dr. Walter Shewhart, a statistician who worked at Western Electric, Bell Laboratories and who used statistics to explain process variability.

**The second wave: business process Reengineering : BPR** A common term for careful investigation and redesign of a company business to achieve better productivity, better customer services, and so on. It requires a fundamental analysis and radical redesign of everything: business Processes and management systems, job definitions, Organizational Structures and beliefs and behaviors to achieve dramatic performance improvements to meet contemporary requirements. IT is an essential enabler in this process.[22]Reengineering burst onto the scene in the early 1990s, popularized in the book *Reengineering the Corporation*, by Michael Hammer and James Champy. The focus of reengineering was dramatic and radical process redesign. Reengineering was therefore a much more aggressive approach, reasoning that the process wouldn't perform at an acceptable level even if all the wrinkles were gone.[23]

**The Third Wave: Process-Oriented Organizational Design :** The purpose of the third wave is to set up an Organizational Structure that enhances the focus on process. This enables the key business Processes within the Organization to operate at maximum efficiency, delivering value both internally and to customers. The significance of the third wave, however, was that more and more companies started to realize that process performance was a key factor in their high-level decision making. Process thinking had to be integrated into all management decisions, up to and including the Structure of the Organization. The final frontier was planning for the future of the Organization by proactively leveraging process performance.[24]

**The Fourth Wave: Process-Based Competition :** The fourth wave is where process performance is integrated into Strategy. This means not only identifying the process weaknesses that have the most strategic significance and fixing them, but also understanding how process strengths can be better leveraged. It was customary for the leaders of the Organization to develop a strategic plan that would include a host of improvement initiatives. Process improvement teams would then analyze the situation and develop new process innovations to help the Organization run better, and these

innovations would be integrated into the Processes.[25] The problem is that today enterprises that use technologies, yet most enterprises today still use disintegrated business Processes.[26]

**3. Business Process Management (BPM) Principles :** This include :[27]

**Processes Are Assets:**BPM's first principle is Processes are assets that create value for customers.

**Processes Should Be Managed and Continuously Improved :**Because Processes are assets, core Processes and Processes that generate the most value to customers, should be carefully managed.

**Information Technology (IT) Is an Essential Enabler :** IT can provide real-time process information that is very important for BPM to accomplish its tasks of monitoring and controlling business Processes.

**4. Business Process Life Cycle :** The first step is to set Organizational goals. This helps to align BPM to the Organizational goals. The next step is to inventory all the business Processes within the Organization. The task of inventorying Processes could uncover the need for Processes that do not yet exist and have a large value proposition. While inventorying business Processes, the current Processes should be documented. After Processes are inventoried, these Processes should be ranked using a combination of criteria. These criteria could include relevance to Organizational goals, process performance relative to available benchmarks, and potential return if the Processes were improved. [28]Business Processes are introduced, modified to the extent possible, and get replaced the standard format of a *life cycle.*:[29]

**Design Stage**. Process Design is typically mapped and documented using a modeling tool. This model plays a key role and, once finalized, serves as documentation of the entire process. The deliverables from the Design stage are not all technical.

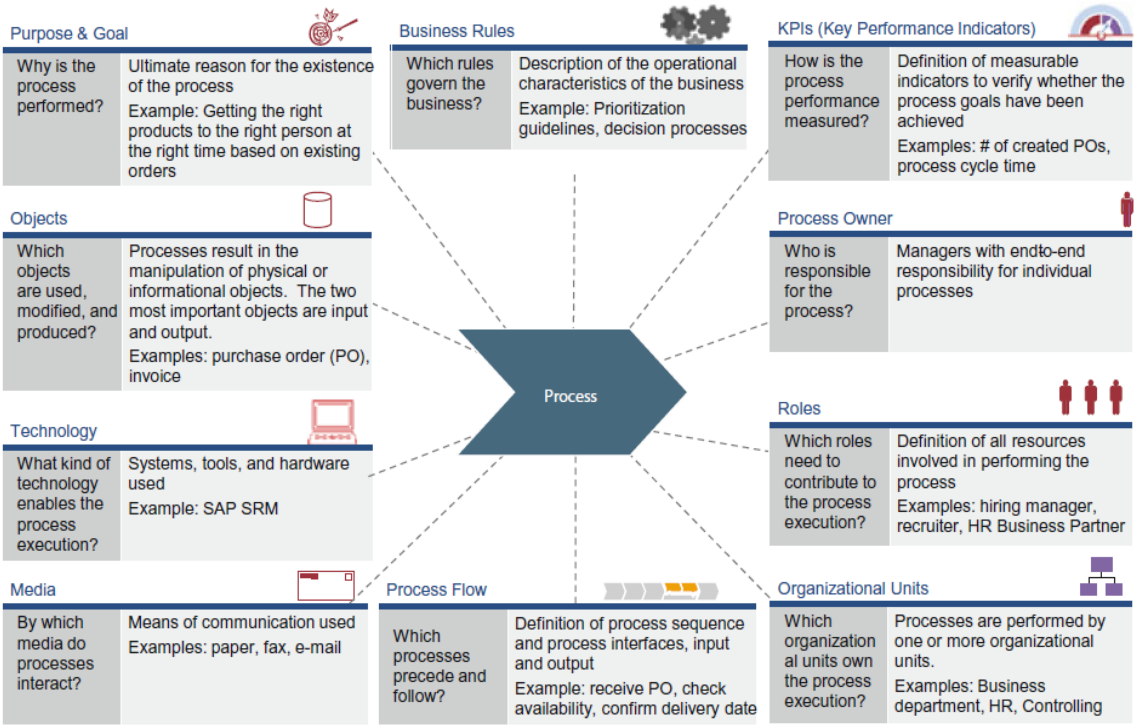
**Implementation Stage :** Implementation includes integrating the process with other Processes that share inputs or outputs, testing, and verifying that it works correctly and reliably. Problems may require going back to the process Design stage. Not only is the development of the process important, the testing of the process is equally as critical. The three tests are:[30]

- **User acceptance:** Users tests whether the process is Designed well from their perspective.
- **Functional acceptance:** Process analysts test whether the process performs its functions.
- **System acceptance:** Technical experts attest that the process is integrated correctly with inputs and outputs of other Processes, data sources, and data stores.

**Evaluation Stages.** As new Processes are added or Processes are redesigned or removed, Processes that are in production may become problematic or unstable. Therefore, during this stage, the Processes are monitored.

**Process evaluation and improvement :** An essential concept in process management is that all Processes have improvement potential. If Organizations only focus on current Processes, current problems, and doing the things that are currently done, they may eventually encounter a variety of problems.[31]The improvement of an Organization's business practices through the analysis of activities in order to reduce or eliminate non-value-added activities or costs, while at the same time maintaining or improving quality, productivity, timeliness, or other strategic or business purposes as evidenced by measures of performance. Also called functional process improvement . [32]

*Fig n°(0 1) : Business process description*




***Source:*** *Guido Grüne et al, Business Process Management within Chemical and Pharmaceutical Industries Markets, Springer, Germany, 2014, P61;*

**5. BPM and Organizational Design :** Information and decision Processes cut across the Organization ' s Structure; if Structure is thought of as the anatomy of the Organization, Processes are its physiology or functioning. Management Processes are both vertical and horizontal. Vertical Processes, allocate the scarce resources of funds and talent. They are usually business planning and budgeting Processes. [33] The core concept of BPM is a relentless focus on Processes. Processes are the core assets of an Organization, and they produce the values that justify an Organization's existence. In order for Processes to be effectively managed and improved, BPM, like other process-focused business improvement practices, espouses a process-oriented Organizational Structure. Three types of process-oriented Structures have been identified: [34]

- Process Organization
- Case management Organization
- Horizontal process management Organization,

The Processes are related to tasks and they cut across functional departments in an Organization. Reengineering seeks to make radical changes in the Organization. Reengineering applies to the Structure of the entire Organization as well as to individual business Processes. A manager needs to stay alert to the opportunities for reengineering Processes for the entire Organization. Reengineering serves to focus attention on business Processes and the difference between radical and incremental change. Reengineering has not been completely successful, primarily because of the magnitude of the changes it entails and the difficulty of changing Organizations in general. [35]

The process Organization, which aligns the Organizational Structure along process lines. Each process unit would contain various functions that support the process. The advantage of process Organizationis it optimizes the performance of the process. The important point is not which

Organizational Structure to adopt but that the Organization should have a culture of being process-focused. When the business environment presents new market opportunities, process focused Organizations would promptly seize the opportunity to create new Processes for exploiting those new markets. BPM Organizations would be better equipped to exploit these new opportunities than Organizations that are not process-focused. In other Organizations, the amount of communication and coordination between functions to implement the new Processes needed to access these new market opportunities may present serious challenges to Organizations that are not process-focused.[36]

Processes and lateral connections provide the required mechanisms of integration. Processes that cross Organizational boundaries force Organizational units to work together. Their Design has a significant impact on how well units work together vertically or laterally. Clear articulation of roles and responsibilities at the boundary interfaces is essential for the Design of good Processes.[37]

**6. BPM , Management and Technology :** When describing business process management, there are two primary perspectives:[38]

**Management Disciplines:** Business process management replaces traditional views of business based on Organizations conceived of functional and departmental areas, with their metrics and procedures based on cross-functional core Processes aligned with high level business objectives and enterprise Strategy.

**Technology platform:** Business process management combines business Processes, information, and IT resources, aligning your Organization's core assets of People, information, technology, and Processes, to create a simple integrated view.

**BPM functionality :** Business process management solution component support centers around four major tasks, model, assemble, deploy, and manage: [39]

**Model** A *model* is an abstraction of a real environment, or physical system, that has a specific purpose.

**Assemble** The assembly started from a business-generated model, the implementation reflects essential characteristics specified by the business and supports capture and analysis of business-defined KPIs and other metrics critical to success.

**Deploy** The deployment step results in the execution of the assembled IT solution on a process server. The server must choreograph the integrated human and programmatic activities.

**Manage** The fourth task is management, which primarily refers to monitoring process execution and business performance.

**BPM Tools :** These tools help businesses identify and document Processes requiring improvement, create models of improved Processes, capture and enforce business rules for performing Processes, and integrate existing systems to support new or redesigned Processes. BPM software tools also provide analytics for verifying that process performance has been improved and for measuring the impact of process changes on key business performance indicators.[40]The analyst firm Gartner introduced the idea of **BPM Suites** (**BPMS**) to capture a comprehensive set of functionalities for an enterprise class BPM platform. These capabilities included support of Structured and unstructured Processes, human tasks, forms and documents, rules and policies, participant roles and responsibilities, Organizational Structures, work-item routing, collaboration, business events, handling of Design-time changes, integration with software services, and process monitoring and management. [41]

**Business Process Management System BPMS:** *The Third Wave*, BPM is the maturation and synthesis of process management practices and modern IT. This synthesis represents the falling in place of all the components that allow enterprises to achieve process management, which is the ability to control, monitor, and enhance business Processes. BPMS is a new class of software that allows Organizations to devise process centric Information Technology solutions. Process-centric means BPMS solutions are able to integrate People, systems, and data. Organizations that utilize BPMS to accomplish IT–enabled business process change will gain the following capabilities: [42]

1. Closer business involvement in Designing IT–enabled business process solutions
2. Ability to integrate People and systems that participate in business Processes
3. Ability to simulate business Processes to Design the most optimal Processes for implementation
4. Ability to monitor, control, and improve business Processes in real time
5. Ability to effect change on existing business Processes in real time without an elaborate process conversion effort

**BPM vendors and their software products:[43]**

- Microsoft[44]BizTalk Server automatically generates BPEL code directly from BizTalk Orchestration Designer diagrams.
- IBM [45]WebSphere Business Server Integration Workbench automatically transforms between various UML diagrams. The IBM WebSphere Business Integration Server Foundation automatically generates BPEL code from process models.
- Oracle[46]BPEL Process Manager automatically generates BPEL from process models. It runs on all of the major application servers, including Oracle Application Server, IBM WebSphere, BEA WebLogic, and JBoss.
- SAP[47]NetWeaver supports WSCI for BPM, with the stated intent of also supporting BPEL.
- The ARchitecture of Integrated information Systems (ARIS[48]) provides an approach to document the whole life cycle range of the enterprise, from business Design to Information Technology deployment.[49]

**7. BPM Benefits :** Better Processes produce lower cost, higher revenues, motivated employees, and happier customers. Business Process Management (BPM) is an approach that's designed to produce better Processes. BPM is a collaborative effort between business units and the IT world, and this effort fosters a new paradigm of efficient and logical business Processes. The New, Agile Business Model , In today's dynamic business environment, Organizations need to be agile so they're ready to respond to whatever challenges come their way. BPM provides that agility by giving you more direct control over your operational Processes. BPM helps create value for the enterprise through growth, improved performance, better productivity, effectiveness, and better customer service.[50] BPM can enable a company to become more agile and better integrated to see the business measures and goals as they relate to the entire enterprise. Being agile can enable an enterprise to bring new products and services to market quickly, to respond rapidly to changing demand, and to be proactive rather than reactive. This brings with it many benefits:[51]

- Allowing you to extend the scope of process automation and management across the IT barriers that historically have separated departments.

- Making process performance visible at the process level, tracking process data, and monitoring it relative to selected key performance indicators, and aggregating it for better management on.
- Providing the capability to identify and eliminate data redundancy and bottlenecks, because it is possible to identify them during development of the process rather than after they are operational.
- Increased portability and decreased maintenance cost because Processes are based on industry standards.
- Process implementations are automated resulting in the elimination of manual deployment tasks.

Other benefits including :[52]

✓**Increased productivity:** In today's economy you need to do more with fewer resources. Applying BPM principles helps your enterprise increase its productivity.

✓**Speed to market:** When a new idea or product comes along, effective BPM helps you be one of the leaders, not one of the followers who were too late to take advantage of the new market.

✓**Reaching the global market:** BPM can help you streamline your supply chain operations, so you can take advantage of opportunities no matter where they may exist.

✓**Achieving compliance:** Keeping up with complex compliance, regulatory, and corporate governance requirements can be very costly and time-consuming.

✓**Accelerating innovation:** You need a business environment where innovation isn't only encouraged but also where innovation is a normal part of daily operation. Here, too, BPM can help make that possible.

**8. BPM challenges and future direction :** Executives report that the largest single barrier to successful business process change is Organizational culture. Employees do not like unfamiliar routines and often try to resist change. Most business Processes cut across functional and departmental silos, and connect disparate applications, information, and People. Thus, a full-featured BPMS must cater to the requirements of many stakeholders, ranging from business users and analysts to IT developers and operations People. They must also handle the challenges of integration of systems, events, information, documents, and human workers, and keeping with the emerging trend of increasing digital communication must facilitate employee and partner collaboration.[53]Over several rounds of consensus finding, the study identified and defined four distinct cultural values that facilitate BPM: customer orientation, excellence, responsibility, and team-work .[54]Realizing a truly elastic BPMS involves meeting each of these infrastructural challenges, namely scheduling, resource allocation, process monitoring, decentralized coordination, and state management. [55]

**BPM Future research directions :** This include : [56]

**Elasticity dimensions.** All analyzed approaches to scheduling and resource allocation apply resource elasticity, while quality elasticity is partially regarded in some approaches through optimization of turnaround time of elastic Processes.

**Horizontal vs. vertical scaling.** Current approaches focus on horizontal scaling. However, further optimization may be achieved by also supporting vertical scaling, since it could lead to lower cost when leasing and releasing computational resources.

**Design methodologies.** Designing an eBPMS in the cloud is a complex task which requires the Design of Processes, services, virtual Infrastructure, and scaling algorithms as well as dealing with interdependencies between the different aspects. As of now, there is no synchronized Design methodology to model Processes, events, and Infrastructure.

**Process monitoring and data collection Common event format.** Neither for BPM nor in the context of cloud computing there is a common, standardized event format which can be used out of the box. In BPM, there is a tendency to make events interoperable using formats such as the Business Process Analytics Format (BPAF) .

**Task coordination.** Coordination mechanisms in distributed systems are well-established. However, there is a need to extend them into richer task coordination mechanisms for decentralized eBPMS.

From all explanations we can say that the BPM make its place as a strong tool used to make a good maps for the company Processesby making that an important daily activity used by the managers today, that can help them to make a good business architect and a good integration with its systems.

**II. Enterprise Integration:** Global organizations strive for agility and flexibility in order to cope with rapid changes in both internal and external environments. To rapidly respond to a changing environment, an enterprise must integrate business functions into a single system efficiently utilizing IT, and share data with third-party vendors and customers.[57]The lack of integration of information systems has created a variety of problems. The most serious ones among those problems are the following:[58]

- Redundancy, i.e., the same information is stored and maintained several times.
- Inconsistency, i.e., information about the same entity stored in different places is not the same.
- Lack of integrity, i.e., databases where such information is stored are not correct.

The types of company that ought to switch to this method of integrating: [59]

- The problem of managing innovation : Advances in computing do not come only from inventions. There are also successful innovations
- Process innovation : This involves the setting up or adoption of new methods of organization, development, production, or distribution.
- Breakthrough innovation : An innovation is said to be a breakthrough when it completely changes the way in which customers use it.
- All the big firms have gone through the same technologic cycles : Individual choices may have been different, technologic breakthroughs are unifying by nature.

Enterprise Integration also refers to the plans, methods, and tools aimed at modernizing, consolidating, and coordinating software applications among a group of businesses or organizations that interact as consumers and suppliers. Enterprise integration might involve developing a total view of the organizations' businesses and applications, seeing how existing applications fit into the new model, and then devising ways to efficiently reuse what already exists while adding new applications and data. Enterprise integration is done for the mutual benefit of all organizations involved.[60]A successful program supplies an intelligence capability that both draws on enterprise data resources and

is available as a resource across the enterprise. This implies that there must be well-defined processes for integrating information from multiple sources, whether it means merging data sets aggregated and deposited at a staging area or providing the means for integrating collections of data instances as they move through articulation points in the enterprise. Extract/transform/load (ETL[61]) processing, enterprise application integration (EAI[62]), and Web Services are all examples of process architectures designed for enterprise integration.[63]The Integration of information systems can be considered from several perspectives: from the data, the functions, the operations, the processes, the methods, and the software perspectives. The most important aspects are data integration, operations integration, process integration, and software integration:[64]

- Integration of *data* means that data models and databases are unified so that all departments of an enterprise use the same data entities, with the same values.
- Integration of *operations* requires connecting individual operations, or steps of a business process, with preceding or succeeding operations, respectively.
- Integration of *processes* means that interfaces between different business processes are explicitly considered.
- Integration of *software* means that different programs, e.g., information systems for different business functions, can run together and use each other's data and operations.

Companies that succeeded in integrating their systems enjoyed tremendous competitive advantage and reaped huge rewards in sales and market shares by offering unprecedented customer values. Systems integration has been an important topic ever since businesses started using mainframes to support their back-office operations.[65]As organizations become more complex and diverse in the global context, it becomes nearly impossible for organizations to implement their global business concepts without enterprise integration. Enterprise integration should enable organizations to become more agile and flexible. To achieve agility and flexibility, it is necessary to have both technical and behavioural integration. Conversely, it can be argued that behavioural integration is critical to the success of enterprise integration. The technical integration can be a success but if the organization is not going to internalize the enterprise system, the entire project is a failure. As such, to achieve the maximum benefit and impact from enterprise integration, we need to have both successful technical and behavioural integration.[66]

**1. Integration and IT technologies :** Organisations have introduced enterprise systems in order to reduce problems associated with legacy systems, cope with year 2000 challenges, offer the firm greater competitive advantages, compete globally, and to assist the company achieve a single "integrated" technological platform. With organisations stressing the need for greater supply chain integration, these systems offer the first glimmer of hope to achieve such integration.[67]The requirement to integrate diverse information assets continues to grow, whether it stems from the proliferation of business applications, growth by acquisition or the need to interoperate within an integrated business community. Integration can be at the data level or require the application of business rules, policies or basic logic. Whether the desired result is shared data, shared logic or simply a unified or consolidated view of your business, you will be faced with choices. You may wind up replacing systems or writing custom interfaces. Or you may turn to enabling technologies to blend old technology with new in order to achieve that all-important, emerging metric of interoperability.[68]

**2. Integration through BPM :** The introduction of an IT system assists in integrating a firm's business processes and removing disjointed legacy systems, unstable IT architectures, and IT expenditure related to maintenance of these systems.[69]IT systems have to become social systems able to address both their technical and organisational challenges, questioning the compatibility and possible synergy between information system efficiency and organisational work, taking into account the information and communication issues, and the technology as a social construct. This will ask for combining and developing technical and organisational knowledge through a renewed collaboration between computer and engineer scientists and social scientists, that is to say, going further in the debate between different disciplines.[70]IT systems have provided companies with a backbone for managing internal business processes and controlling transaction level activity at an arm's length from their suppliers and customers, but now businesses must take the next step, shifting their focus outward. Are you ready? E-transformation is not a single giant step, but a series of smaller steps that become a journey to full E-business[71]integration.[72]

Today, IT systems is still evolving—adapting to developments in technology and the demands of the market. Four important trends are shaping IT systems continuing evolution: improvements in integration and flexibility, extensions to e-business applications, a broader reach to new users, and the adoption of Internet technologies . The growth of the Internet and corporate intranets and extranets prompted software companies to use Internet technologies to build Web interfaces and networking capabilities into IT systems. These external links signalled a move toward the integration of internal-facing IT applications with the external-focused applications of supply chain management (SCM) and a company's supply chain partners. Of course, the goal of these software suites is to enable companies to run most of their business processes using one Web-enabled system of integrated software and databases, instead of a variety of separate e-business applications. [73]However, with the emergence of Internet technologies, implementation upgrade difficulties and cost of ownership have been dramatically reduced. Greater emphasis will be placed on total supply chain integration, with various new technologies offering such extensions, and inter-enterprise integration promising to be the penultimate prize.[74]EAI for example is middleware that connects and acts as a go-between for applications and their business processes.[75]

The BPM can lead the company to have a good integration by providing tools like the BPMS which can help to elaborate a good business architecture and after that a good IT architecture.That can lead to make a coherence and flexibility among the different IT systems provided by the enterprise integration, which we can achieve it by using the BPM tools.

**3. BPM Limitations and challenges for the IT systems integration:** Like all business tools, there are as many limitations as there are benefits for the BPM. These issues will now be discussed. Excessive *focus on technical* aspects to the detriment of business aspects has been identified as a leading factor for many IT system failures. The reasons they give for such costs are due to the scale of business process reengineering (BPR) and change management issues involved in the implementation of the software. IT systems can be structured, systematic packages that make the organisation "fit" the software rather than the software fit to the needs of the enterprise, that is, *inhibiting organisational flexibility.* This level of inflexibility can prohibit organisational change and BPM growth. It pushes companies toward full *integration,* and changes various business processes into generic ones even if the company wants to customise some of these business processes. Another problem for IT systems is the cost of workarounds and upgrades in specific modules, particularly when an organisation is

customising the package to suit organisational business needs.[76]Other challenges of IT systems integration:[77]

- Customization is limited in many situations: IT system should readily allow partners and customers to customize and get the most out of the system to realize their full potential.
- The need to reengineer business processes: Businesses may not be willing to reengineer their business processes as they are using time-proven processes suitable for their custom needs and conditions.
- Rigidity: IT solutions may be too rigid for specific organizations that are either new or want to move in a new direction in the near future.

With outcomes such as these there are clearly obvious challenges facing organisations. Many process models tend to move through the implementation process using CSFs[78]as benchmarks, without paying adequate attention to the organisational and human elements of the project. The second part of the suggested answer cuts to the very core of an IT existence, that is, questioning their *nature* to promise "seamless integration". IT systems are comprised of two types of integration: these are technological and organisational integration. Technological integration can ever only be successful if there is organisational alignment between the technology and business processes of the enterprise. Organisational integration relates to how the business processes are aligned, or realigned, with the IT system, and how the elements of change are integrated into the overall IT strategy.[79]
BPM also require a good understanding of the business and how to make a good transformation of all our needs to a business process and how to integrate it with the new changes happened in the IT technologies. And to achieve that companies should be allocate the technological, organizational and human resources with giving more importance to bring all resources together by providing necessary tools to get a good results. IT Infrastructure must be integrated with the overall business Processes and value chain and supported the notion that improving business Processes that will increase the degree of the integration.

**Conclusion :**

The great transformation of the business environment requires a great ability to adapt and change quickly from the companies, that why they keep in mind new tools that allow them to move quickly with the necessary agility and great adaptation capacity with the new business environment changes. An organization needs an IT that is integrated, comprehensive, dynamic, and adaptive. This would enable an enterprise to have agility and flexibility as well as standardization and compatibility through the Internet. With new achievements in information technologies IT and in the supporting tools which allow to make a good adaptation of this technologies, companies are vulnerable if they do not respond to those technologies in a fast and proper way. Core competencies, however, are nearly always built from understanding the differences and similarities between the ways of doing business and desired new technologies. Top management should first strive to understand their business and needs for enterprise integration, and then select a methodology that may bee help them to make a goodintegration. BPM is among the effective tools that could be help the enterprise to achieve a good integration among the business processes and the IT systems. The introduction of BPM is a big step towards integration but it also brings new challenges in creating a truly integrated enterprise to achieve agility and flexibility in organizations, there should be a greater degree of communication, coordination, and cooperation in human factors as well as information technologies . Information

Technology should be viewed as a tool which the organizations use it to improve the way that they do business. Using BPM to develop the company Processes lead to make the good integration and the good orientation of the efforts and to clarify all relationships and doing the good alignment to achieve the company Strategy and provide the necessary agility to move quickly front to the dynamic environments.

## Bibliography List :

[1]Total quality management (TQM) consists of organization-wide efforts to install and make a permanent climate in which an organizationcontinuously improves its ability to deliver high-quality products and services to customers.
[2]Business process re-engineering (BPR) is a business management strategy, originally pioneered in the early 1990s, focusing on the analysis and design of workflows and business processes within an organization. BPR aimed to help organizations fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs, and become world-class competitors.
[3]Six Sigma (6σ) is a set of techniques and tools for process improvement. It was introduced by engineer Bill Smith while working at Motorola in 1986. Jack Welch made it central to his business strategy at General Electric in 1995.
[4]Stefan Schulte A, et al,, "Elastic Business Process Management: State of the art and open challenges for BPM", Cloud Journal of Future Generation Computer Systems, Elsevier, 46 (2015), P36-50;
[5]James F. Chang, "Business Process Management Systems : Strategy and Implementation", Taylor & Francis Group LLC, USA, 2006, P29;
[6]Efraim Turban and al., "Information Technology for Management : Improving Strategic and Operational Performance", 8th Edition, John Wiley & Sons, USA, 2011, P394;
[7]Heidi Buelow et al., " Getting Started with Oracle BPM Suite 11g", Oracle, USA, 2010, P07;
[8]Marilyn M. Helms , "Encyclopedia of Management", 5th ed, Thomson Ed, USA, 2006, P681;
[9]Efraim Turban and al., Op.Cit., P394;
[10]Stefan Schulte A, et al, Op.Cit., P36_50;
[11]James F. Chang, Op.Cit., P03;
[12]Theresa Schmiedel et al., "Development and validation of an instrument to measure organizational cultures' support of Business Process Management" , Journal of Information & Management 51 (2014) 43-56 Elsevier, 2014, P44;
[13]Marilyn M. Helms , Op.Cit., P680;
[14]James F. Chang, Op.Cit., P04;
[15]Heidi Buelow et al., Op.Cit., P10;
[16]Clive Finkelstein, "Enterprise Architecture for Integration Rapid Delivery Methods and Technologies", Artech House, USA, 2006, P18;
[17]Just-in-time (JIT) manufacturing, also known as just-in-time production or the Toyota Production System (TPS), is a methodology aimed primarily at reducing flow times within production system as well as response times from suppliers and to customers. Its origin and development was in Japan, largely in the 1960s and 1970s and particularly at Toyota.
[18]Marilyn M. Helms , Op.Cit., P680;
[19]James F. Chang, Op.Cit., P06;
[20]Ralph F. Smith, "Business Process Management and the Balanced Scorecard : Using Processes as Strategic Drivers", John Wiley & Sons, USA, 2007, P15;

[21]Marilyn M. Helms , Op.Cit., P680;
[22]Ejub Kajan, "Information Technology Encyclopedia and Acronyms", Springer , Germany, 2002, P67;
[23]Ralph F. Smith, Op.Cit., P15-16;
[24]Ibid., P19-22;
[25]Ibid., P23;
[26]Clive Finkelstein, "Enterprise Architecture for Integration Rapid Delivery Methods and Technologies", Artech House, USA, 2006, P18;
[27]James F. Chang, Op.Cit., P31-33;
[28]Ibid., P44;
[29]Efraim Turban et al., Op.Cit., P394;
[30]Ibid., P395;
[31]Marilyn M. Helms , Op.Cit., P682;
[32]Ejub Kajan, Op.Cit., P67;
[33]Jay R. Galbraith, "Designing Matrix Organizations That Actually Work : How IBM, Procter & Gamble, and Others Design for Success", Jossey-Bass A Wiley Imprint, USA, 2009, P15;
[34]James F. Chang, Op.Cit., P34;
[35]Henry C. Lucas, Jr., "Information Technology for Management", 7th Ed., McGraw-Hill, USA, 2000, P515;
[36]James F. Chang, Op.Cit., P34-35;
[37]Amy Kates and Jay R. Galbraith, "Designing Your Organization Using the Star Model to Solve 5 Critical Design Challenges", JohnWiley&Sons, USA, 2007, P17;
[38]Chuck Ballard et al., "Improving Business Performance Insight with Business Intelligence and Business Process Management", IBM Press, USA, 2006, P63;
[39]Ibid., P68-73;
[40]Kenneth C. Laudon and Jane P. Laudon, "Management Information Systems: Managing The Digital Firm, 11th Ed. , Pearson Education, USA, 2012, P 494;
[41]Heidi Buelow et al., Op.Cit., P11;
[42]James F. Chang, Op.Cit., P49-50;
[43]Clive Finkelstein, Op.Cit., P457;
[44]Microsoft Corporation is an American multinationaltechnology company with headquarters in Redmond, Washington. It develops, manufactures, licenses, supports and sells computer software, consumer electronics, personal computers, and services.
[45]IBM (International Business Machines Corporation) is an American multinationaltechnology company headquartered in Armonk, New York, United States, with operations in over 170 countries. The company began in 1911 as the Computing-Tabulating-Recording Company (CTR) and was renamed "International Business Machines" in 1924.
[46]Oracle Corporation is an American multinational computer technology corporation, headquartered in Redwood Shores, California. The company specializes primarily in developing and marketing database software and technology, cloud engineered systems and enterprise software products — particularly its own brands of database management systems. In 2015, Oracle was the second-largest software maker by revenue, after Microsoft.
[47]SAP "Systems, Applications & Products in Data Processing") is a German-based European multinationalsoftware corporation that makes enterprise software to manage business operations and customer relations.

[48]ARIS from the European company IDS Scheer offers extensive enterprise architecture support in a wide range of modeling tool products.
[49]Selmin Nurcan and Zhichao Song, "A Framework for Situating Business Process Engineering Approaches", Information Resources Management Association International Conference Washington, DC, USA, May 21-24, 2006, Mehdi Khosrow-Pour, Emerging Trends and Challenges in Information Technology Management, Idea Group, USA, 2006, P288;
[50]Brian Underdahl, "Business Process Management For Dummies: IBM Limited Edition", Wiley Publishing, 2011, P05-06;
[51]Chuck Ballard et al., Op.Cit., P64;
[52]Brian Underdahl, "Business Process Management For Dummies: IBM Limited Edition", Wiley Publishing, 2011, P06;
[53]Heidi Buelow et al., Op.Cit., P11;
[54]Theresa Schmiedel et al., Op.Cit., P44;
[55]Stefan Schulte A, et al, Op.Cit., P36-50;
[56]Idem.;
[57]Jinyoul Lee, Keng Siau, and Soongoo Hong, 'Enterprise Integration with ERP and EAI COMMUNICATIONS OF THE ACM', February 2003/Vol. 46, No. 2, P54.
[58]Karl Kurbel, "Enterprise Resource Planning and Integration", Encyclopedia of information science and technology, Idea Group Inc, USA, 2005, P 1075.
[59]Larry Bensimhon , Aldo Levy , Georges Pariente, "Organizational Consequences Linked to the Incorporation of ERP into Companies' Service-marketing Activities" , Journal of Internet Banking and Commerce JIBC, December 2009, Vol. 14, No. 3, P03.
[60]Hamada H. Ghenniwa, Michael N. Huhns, "Marketplace Architecture for Enterprise Integration", Encyclopedia of information science and technology, Idea Group Inc, USA, 2005, P 1905.
[61]Extraction-Transformation-Loading (ETL) A key transitional set of steps in migrating data from the source systems to the database housing the data warehouse.
[62]Enterprise Application Integration (EAI) Extranets provide the ERP II system with a portal and a platform for integration with other systems inside or outside the corporation. EAI provides the support for automating
processes across various IT platforms, systems and organizations.
[63]David Loshin, "Business Intelligence: THE SAVVY MANAGER'S GUIDE", Elsevier. USA,2003, P37.
[64]Karl Kurbel, "Enterprise Resource Planning and Integration, "Encyclopedia of information science and technology", Idea Group Inc, USA, 2005, P 1076.
[65]Mark I. Hwang, "Enterprise Resource Planning and Systems Integration" , Encyclopedia of information science and technology, Idea Group Inc, USA, 2005, P 1083.
[66]Jinyoul Lee, Keng Siau, and Soongoo Hong, "Enterprise Integration with ERP and EAI COMMUNICATIONS OF THE ACM", February 2003/Vol. 46, No. 2, P56.
[67]John Loonam, Joe McDonagh, ' Foundations & Issues in Enterprise Systems', Idea Group Inc, USA, 2005, P02.
[68]Cindy M. Jutras, 'ERP OPTIMIZATION : Using Your Existing System to Support Profitable E-Business Initiatives', CRC Press LLC, USA, 2003,P145.
[69]John Loonam, Joe McDonagh, Op.Cit, P13.
[70]Bernard Grabot , Anne Mayère, Isabelle Bazet, "ERP Systems and Organisational Change A Socio-technical Insight", Springer, UK, 2008, P10.

[71]E-Business: The use of the Internet along with other electronic means and technologies to conduct within business, business-to-consumer, business-to-business, and business-to-government interactions.
[72]Cindy M. Jutras, "ERP OPTIMIZATION : Using Your Existing System to Support Profitable E-Business Initiatives", CRC Press LLC, USA, 2003,P14.
[73]James A. O'Brien, George M. Marakas, "MANAGEMENT INFORMATION SYSTEMS", Tenth Edition, McGraw-Hill, USA, 2011, P327.
[74]John Loonam, Joe McDonagh, Op.Cit, P09-12.
[75]Efraim T, Linda V, Janice C. Sipior, Gregory R. Wood, Op.Cit, P292.
[76]John Loonam, Joe McDonagh , Op.Cit, P15.
[77]Anil Kumar Gupta , "Quality Assurance for Dynamics AX-Based ERP Solutions", Packt Publishing, UK, 2008, P10.
[78]Critical Success Factors, A methodology for managing projects and firms that concentrates on the areas where things must go right if the endeavor is to flourish.
[79]John Loonam, Joe McDonagh, Op.Cit, P19.