Process Modeling as Key Technique for Embedding the Practices of Business Process Management in Organization

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Abstract. The growing competition asks for high efficiency in business with the aid of Business Process Management (BPM). This article proposes a practical initiative to incorporate and leverage the BPM into organization. The research commences with the overview on the proliferation of BPM in academic community and industry. The authors modeled the appropriate processes to provide the frame for understanding and applying the BPM methodology within any organization. The obtained result, Supplier – Input – Process – Output – Customer (SIPOC) diagram maps out flow and process relationships that help document and communicate stakeholders how BPM processes should be performed.

Keywords: Business process management · Process modelling · Innovation

1 Introduction

During the last decades, the major concern on delivering business improvements has emerged in a strategic initiative with the aid of optimizing work and the relationships between organization's stakeholders such as employees, suppliers, and customers. This emerging capability of organizations to deliver rapid business change is known as Business Process Management (BPM), and it represents a revolution in running business operations.

The effectiveness and efficiency of any organization are shed to light on the new paradigm based on looking at the management processes and the role of automation of work within and across the organization, enabling thus a rapid and iterative change of business processes.

The evolving nature of Business Process Management (BPM) and the growing needs of BPM expertize have determined plenty of researches in the attempt of defining and integrating all dimensions, methods, and views of the phenomenon.

Based on these circumstances, the paper aims to investigate different views of business process management concepts from the scientific literature and to review key underpinnings, as widely accepted standard in BPM industry. The authors adopted a managerial perspective of BPM and modeled the related processes using the SIPOC

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diagram (Supplier – Input – Process – Output – Customer). The results depict a high level processes needed for adopting and leveraging BPM in organization, and also help facilitate process understanding being a bridge document between business users and IT specialists or business analysts.

2 Research Framework

In order to fulfill the paper objectives, the research was conducted based on the following qualitative research methods: (i) exploratory research on recent studies from the industry best practices and academia to analyze key attempts within BPM approaches; (ii) qualitative analysis of the three references best practices from dedicated industry: ABPMP (Association of Business Process Management Professionals), IIBA (International Institute of Business Analysis), and APQC (American Productivity and Quality Center); and (iii) modeling the processes required for adopting and leveraging BPM in organization.

According to scholars, there are at least two BPM mainstreams within academic environment: a wider approach based on a managerial perspective of BPM in organization, and a narrow approach focused on the IT tools using BPM platforms and suites [1].

The managerial perspective of BPM has its roots early in 1990 s with the reconceptualization of the entire organization by thinking in terms of comprehensive processes, followed by Total Quality Management and Six Sigma with a focus on statistical quality control techniques to continuously improve the organization processes [2].

As organizations were becoming more process oriented, the unit of analysis consisted of the concept of process has attracted a plenty of studies. The researchers have agreed on embedding the process analysis under the business process management area. In this regard, BPM has been defined as a key part of management by which it enables understanding, documenting, modeling, simulating, and executing end-to-end processes toward an ongoing improvement of organizational performance [3, 4].

During last decades, the advent of IT and the highly-changing marketplace demands have determined enterprises to change their business model by defining new strategically directions to offer added value to all key stakeholders [5]. The process modeling based on Enterprise Resource Planning (ERP) and work flow management helped organizations to automate a lot of work operations. The Enterprise Resource Planning (ERP) was designed to facilitate the flow of information within the boundaries of organization and manage the connections to all stakeholders [6].

In other attempt to automate the work processes, IT specialists from BPM domain have established a common modeling language, Unified Modeling Language (UML) that provides a standard way to visualize, specify, construct, and document the artifacts of a software-intensive system. As useful communication tool, the UML facilitates interactions and reduces confusion among BPM stakeholders by defining the vocabulary of any object-oriented system and by providing the rules for a graphical representation of the system modeled [7].

To further investigate the attempts to create a bridge that link the managerial and IT approaches in BPM field, the scholars tackled the organization from the socio-technical

view and understood its processes with the aid of system analysis. They have proposed a metamodel for understanding, analyzing and designing socio-technical systems. Consequently, the organization was perceived as a socio-technical system comprised of work systems in which people and equipment interact using information, technology, and other resources to produce products/services used by internal or external customers. The metamodel comprised of a coherent subsets of the ten groups of items: work system, organization, enterprise; work system, process, and activity; activity, product/service, and customer; customer and participant; information; technology; inputs and resources used by an activity; infrastructure; environment; strategy. By defining the groups of items and by clarifying their relationships and functioning, it is aimed to improve the understanding and collaboration between business professionals and IT specialists [8, 9].

The industry and academia collaborated and created a worldwide knowledge database to response to the growing need for a deeper understanding of business process management. The Association of Business Process Management Professionals (ABPMP) has articulated the knowledge within the BPM profession with the aid of several knowledge areas accepted as best practices [10].

Released in 2013, BPM CBOK version 3.0 is providing a comprehensive overview of the issues, best practices and lessons learned by coherently integrating key concepts, methods and tools into a wide range of common activities and associated tasks within the following knowledge areas: process modeling, process analysis, process design, process change and transformation, process performance measurement, and process performance improvements.

Another key intake nurtured from the evolution of business process management is referring to the widely accepted standard Business Analysis Body of Knowledge (BABOK Guide) developed by the International Institute of Business Analysis (IIBA). It has proposed a systematic vehicle for creating, monitoring and sharing new knowledge in business processes area with the aid of the current generally accepted practices in terms of process owner, process analyst or process architect roles [11].

The seven knowledge areas, focused exclusively on the business need and adding business value, describe appropriate processes required to complete the business effort; to identify and understand the stakeholders' needs and concerns; to manage issues and changes to the business solution scope; to identify, refine and clarify the business need; to prioritize and progressively elaborate business solution requirements; and finally to assess, identify gaps in solution, and determine necessary workarounds of change to the solution [11].

Another purposeful arrangement of business processes was brought to light by the well-known framework developed by the American Productivity and Quality Center. Through an out of box thinking, the Process Classification Framework proposed different process models that help practitioners to reduce ambiguity and to organize enterprises processes into two groups with a twelve enterprise-level categories [12].

The operating processes group consists of five operating processes such as: develop vision and strategy; develop and manage products and services; market and sell products and services; deliver products and services; and manage customer service. The aim of this group is to set, create and fulfill the stakeholders demand, being tightly connected to the enterprise value chain.

The management processes group helps to ensure a coherent functioning of the enterprise by setting the goals and by enabling to achieve these with the aid of capable resources. This group consists of seven specific processes such as: develop and manage human capital; manage information technology; manage financial resources; acquire, construct, and manage assets; manage enterprise risk, compliance, and resiliency; manage external relationships; develop and manage business capabilities [12].

3 Results and Discussions

Applying process modelling principles for embedding business process management within organizational settlements requires a thoroughly understanding of the phases related to designing, launching, and implementing the process-centric work.

As scholars highlighted, the critical success phases for commencing the business process management endeavor are consisting of analyzing the organization strategy and business model, developing the processes architecture, running the processes architecture, and monitoring and controlling the execution of processes [13].

The authors have taken advantage of one of the basic quality tools, and modeled the related processes within each phase with the aid of SIPOC diagram (Supplier-Input-Process-Output-Customer). The SIPOC technique has enabled authors to display the sequence of steps and related activities, decision points, and the overall order of processing by mapping the operational details which exist within the horizontal value chain of the model [14].

The steps embedded in each phase mainstream the best practices and lessons learned from dedicated literature and organize the logical flow from the inception to the completion point of the planning endeavor [13, 14].

Phase 1 Analyze the Organization Strategy and Business Model. This phase is intended to depict and understand the means of achieving the business mission. As Fig. 1 suggested, the correctness of the process is required to define and articulate the business model and value proposition by carefully take into consideration main inputs such as: organizational process assets, knowledge data base, and environmental factors.

The organizational process assets are consisted of the mission, vision and core values, product portfolio mixt, internal processes and procedures, lessons learned from previous experiences, historical information, and other artifact or practice from the organization involved, that can be used to perform the analysis of the organization. The knowledge data base is comprised of commercial databases, market place conditions, and human resources availability [14].

Another key input for the planning effort is referring to the organizational environmental factors which may enhance or constrain the planning and analyzing options such the organizational culture, structure and charts, industry standards, geographic distribution of resources and facilities [14].

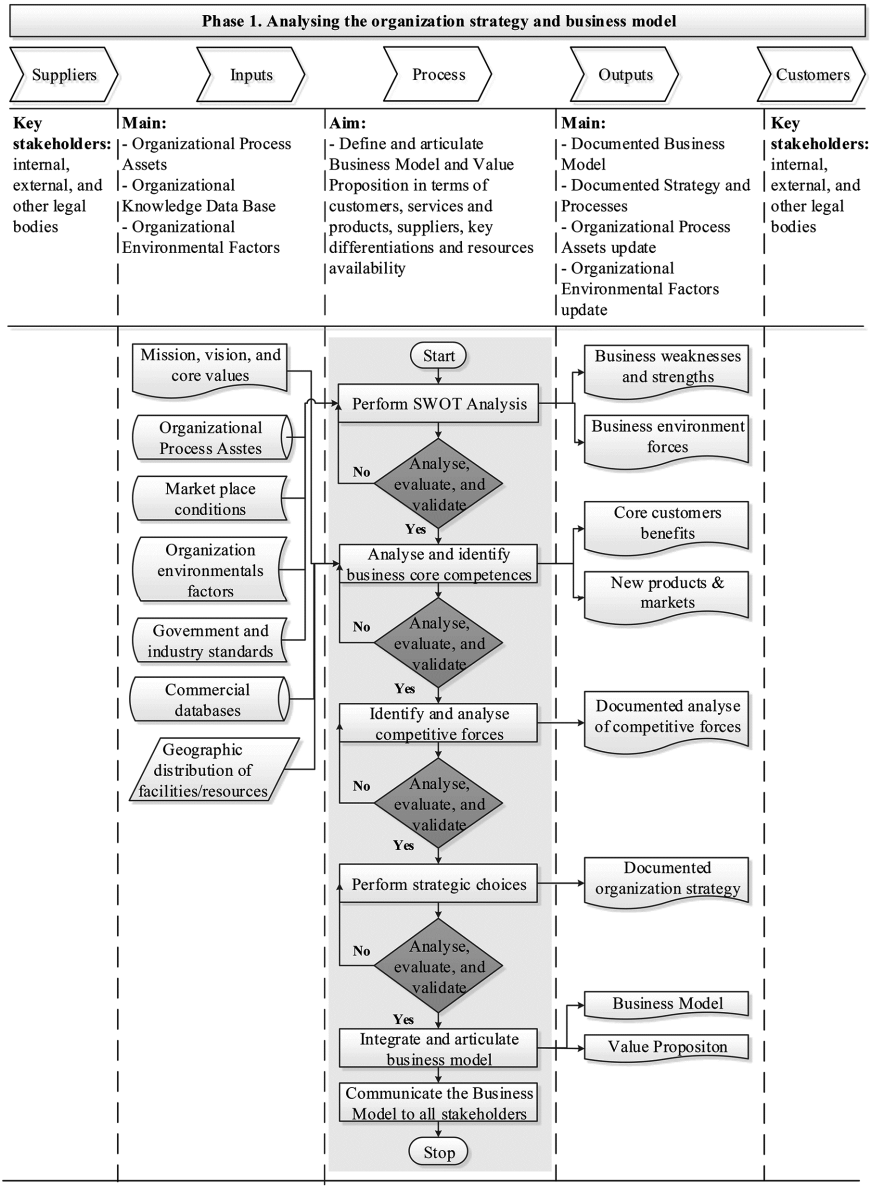

Fig. 1. Analyzing the organization strategy and business model phase.

The prerequisite is referring to taking into consideration all these inputs in performing the related activities during this phase so that the expected outputs, documented business model and appropriate strategy and processes, should work throughout the entire organization.

The flow of activities starts with SWOT analysis aiming at identifying strengths and weaknesses of internal processes, and also at identifying opportunities and threats from business market [15]. Secondly, it is required to carefully define the organization core competences in terms of benefits for customers and end users [16].

The flow goes on with analyzing the influence of competitive forces on organization effectiveness in terms of entry of competitors, threats of substitutes, bargaining power of buyers and suppliers, and the competition among players [16].

The strategic choices of organization should be defined and selected from the following: the best solution for the customer (customer focus), the bets total costs (operational excellence), or the best product (product quality) [17].

Finally, as Fig. 1 suggested, the business model and value proposition are defined by integrating all information developed during the phase, followed by the necessity of informing all stakeholders about the main outputs.

Phase 2 Develop the Organization Processes Architecture. The phase depicted in Fig. 2 aims to provide the overview of the current situation derived from the business model by designing the processes frameworks that capture all the facets of organization.

This phase is feed on the outputs from the previous one and creates the main outputs in terms of organization processes map, documented and agreed upon processes architecture with different forms of details, and updated versions of organizational processes assets and environmental factors.

The phase begins with defining general principles of the processes domains and finishes with concrete guidance for processes development. The planning endeavor goes on with defining the organization processes models pyramids that encompass organizational processes view, end-to-end processes and detailed processes models.

The organizational processes view is intended to give the context in which the organization can view its processes and consists of *strategic processes* responsible for capturing the high level relationships between the value proposition components, *core processes,* derived from the business model, and modeling the main business activity of the organization, and *support processes* representing non-core processes that enable functioning of the core ones.

The next level of detail, end-to-end processes, ensures the link between core and support processes and the various activities from functional areas of organization. The detailed processes models capture and model individual processes by documenting process flows based on the common modeling language UML (Unified Model Language) that provides the rules for graphical representation of the workflow.

Finally, the phase integrates all the information and articulates the organization processes architecture by organizing the processes in a hierarchy expressing the *core processes* responsible for delivering value to the customers and the *support processes* responsible for managing the value chain, effectively and efficiently.

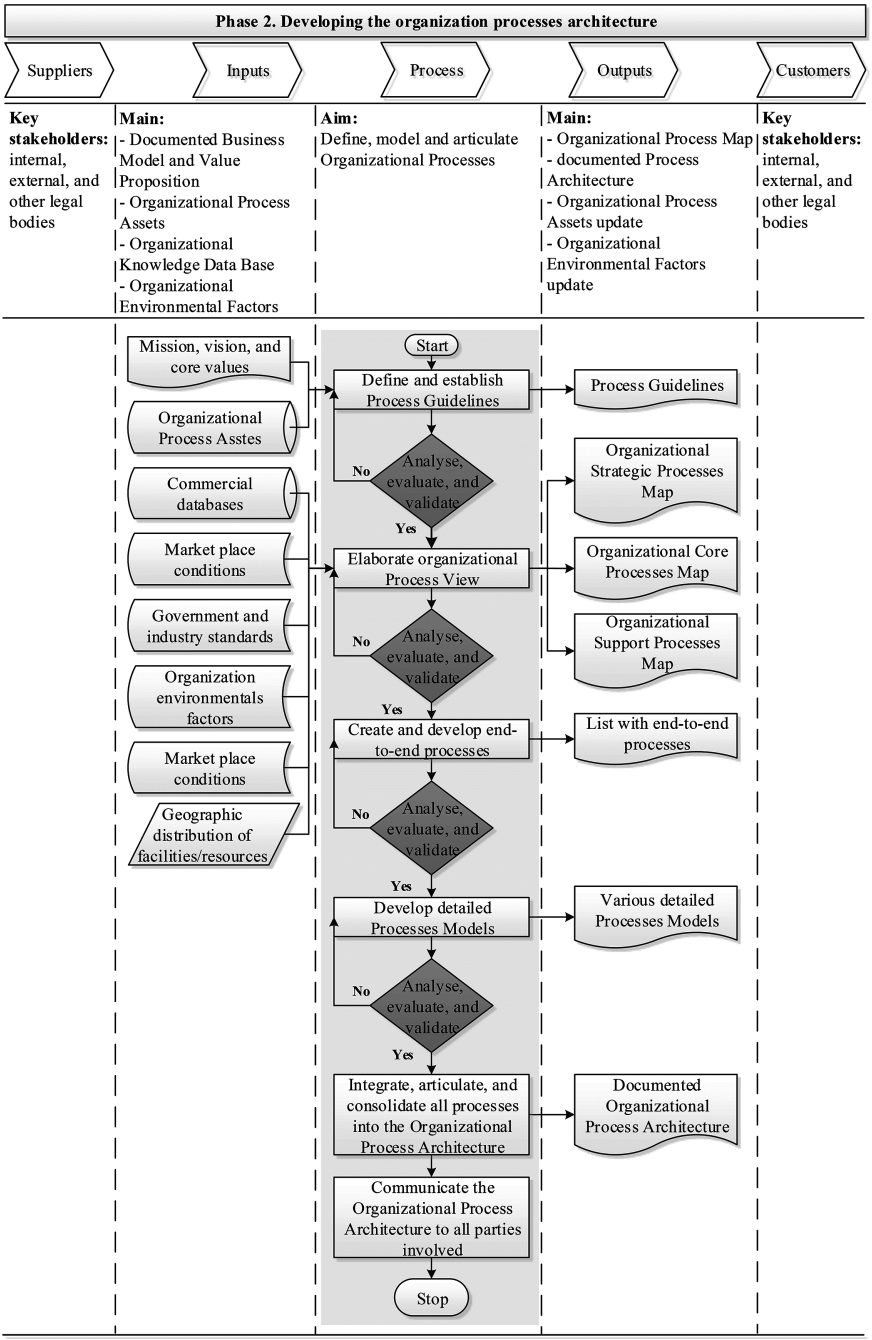

Fig. 2. Developing the organization processes architecture phase.

Phase 3 Running the Organization Processes Architecture. The phase drown in Fig. 3 is responsible for directing and managing process work by integrating stakeholders and other technical and human resources to carry out the work. Also, it is in charge with implementing necessary changes to achieve the organization objectives captured by business model and value proposition.

The phase mainstreams all the outputs from previous phases and delivers outputs in terms of process deliverables, work performance data, change requests, and updated versions of organizational process assets and environmental factors. Work performance data are raw observations and measurements identified during the execution of end-to-end processes such as work completed, performance indicators, technical measurements, number of change requests, actual cost of work and so on.

The phase is intended to communicate and work with various stakeholders to meet their needs and expectations, addresses issues as they occur, and facilitates appropriate engagements in process activities.

By performing the activities flow, the approved organizational processes architecture is brought to life through managing communication flow within all parties involved in process work and also on managing stakeholders' engagements.

Phase 4 Monitoring and Controlling the Processes Execution Phase. The phase, represented in Fig. 4, aims to collect and distribute process performance information, and assesses measurements and trends to effect process improvements.

The phase is nourished with inputs from execution phase such as process deliverables, work performance data, and change requests, and also with baselines from the planning phase as business model, value propositions, and approved organizational processes architecture.

The outputs of the phase consisted of work performance reports and approved change requests are delivered with the aid of the integrated change control activities that analyze all change requests to determine preventive, corrective actions, and follow up action plans.

The complexity of this phase is derived from the two dimensions in which the monitoring and controlling processes are performed: *the static focus,* related to the inputs and/or outputs performance assessments, and *the dynamic focus,* related to the way of performing the work, the process itself. By approving or by rejecting changes, it will be assure that only approved changes are incorporated into the revised baselines, and go through the execution phase.

However, the monitoring and controlling activities are performed on an ongoing bases being inserted in each phase related to designing, launching, and implementing the process-centric work within the organization.

Finally, to increase the efficiency and effectiveness of stakeholders' engagements, it is required to control their commitment through monitoring the relationships and adjusting the strategies for engaging them.

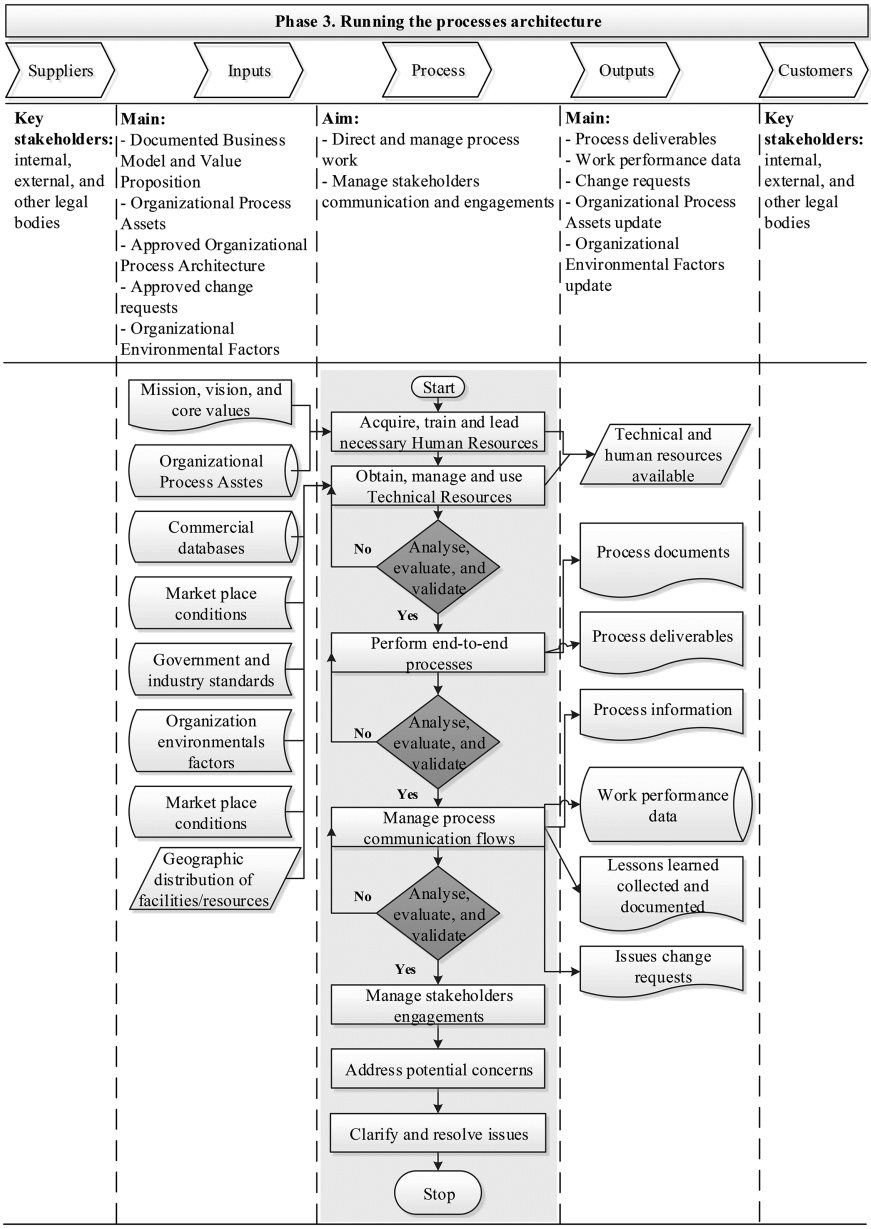

Fig. 3. Running the organization processes architecture phase.

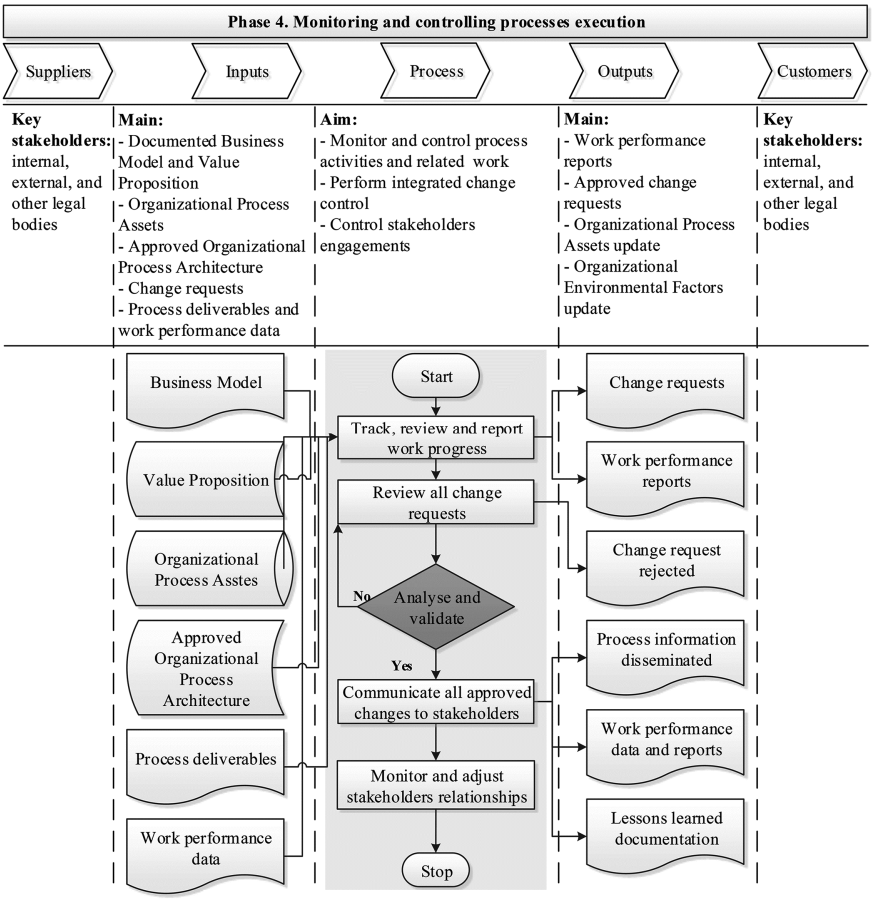

Fig. 4. Monitoring and controlling the process execution phase.

The model proposed by authors has tried to organize and model the endeavor required for embedding the business process management concepts within any organizational context. Therefore, it has been created a conceptual and graphical representation of what is needed to be completed to deliver the work as process results.

4 Conclusions

The developments from the academic and business community generally recognize, accept and promote the process-managed organization's thinking. As the processes are not an end in themselves but rather a vehicle toward fulfilling the organization objectives based on capturing the needs and expectations of customers, an important cross-cutting issue is referring to the conceptual endeavor that integrates all the work needed for a process-centric approach.

Having a broad scope, the proposed methodology maps out inputs, outputs, sequencing activities, and the relationships with different processes' stakeholders and is relying on the knowledge generally recognized as good practices in various industries and business sectors.

To further develop the model, it is envisaged to test the steps within each flowchart in different organizational settings, and to collect necessary feedbacks for adjusting the inputs, outputs, and related activities.

In this way, the paper tried to emphasis the benefits of using a structured approach in the organization, to facilitate the understanding of business process management endeavor, and also to coherently communicate with all stakeholders.

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