

Fostering Organizational Innovation based on modeling the Marketing Research Process through Event-driven Process Chain (EPC)

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Abstract – Enterprises competing in an actual business framework are required to win and maintain their competitiveness by flexibility, fast reaction and conformation to the changing customers' needs based on innovation of work related to products, services, and internal processes.

The paper addresses these challenges which gain more complex bonds in a case of high pressure for innovation. The methodology commences with a literature review of the current knowledge on innovation through business processes management. Secondly, it has been applied the Event-driven Process Chain tool from the scientific literature to model the variables of marketing research process.

The findings highlight benefits of marketing research workflow that enhances the value of market information while reducing costs of obtaining it, in a coherent way.

Keywords – Process innovation, Competitiveness, Business Process Management, Continuous Improvement.

1. Introduction

The financial and economic crises have reinforced central importance of innovation in the whole business value chain as a key means for improving framework conditions to transform ideas into marketable products and services.

Society's ability to cope with recent challenges and opportunities consists of its capacity to create and exploit knowledge as a key factor for growth and progress, making the best use of competitiveness of enterprises and their human capital.

To meet challenges of global competition and increased sustainability, organizations are required to achieve excellence in innovation in a working environment by putting the improved use of ITC, resource optimization, and innovative mechanisms to ensure cross-fertilization of business models in the heart of their concerns.

Thereby, competitiveness and innovation represent two inner connections of any organization which is striving for long-term survival by optimizing work and applying process thinking in designing and managing stakeholders' relationships.

Innovating work, as well as capturing customer and market needs and expectations require designing end-to-end organizational processes based on conceptualization of any work as a process, identifying its beginning, end, intermediate steps, clarifying process's user, measuring progress, and finally improving it.

In this sphere, a marketing research process gains concrete accountability for organizational sustainable innovation, being a bridge between customers and market needs and expectations, and strategic decisions to gain competitive advantage.


The paper aims to decipher modern trends in innovation and business process management and provides a helpful marketing research process diagram using the Event-driven Process Chain (EPC) tool from the graphical vocabulary of the Business Process Modeling Notation (BPMN).

The model proposed by authors helps practitioners to better understand workflow and may enable adoption and leverage of process-centric work in any organization. It provides accurate and opportune information to organizational decision makers and creates valuable inputs and outputs needed for innovating internal processes.

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2. Theoretical framework

The effects of innovation on different organizational levels have drawn attention in numerous academic debates. The literature distinguishes three innovation levels: product, process, and organizational innovation [1]. The product innovation is related to designing and developing new products and services whereas the process innovation is dealing with implementing new processes needed for producing the products [2, 3].

The process innovation generates productivity improvements for an organization since it allows obtaining same amount of outputs with diminished inputs. This enables innovative organizations to lower prices of products, leading to a higher sales volume and higher employment rates, too. However, the beneficial effect of process innovation on productivity depends on a business cycle in which an organization finds itself. As studies argued, in a growing market, enterprises tend to use process innovation with the aim to expand their production capacity whereas in a highly competitive market the innovation efforts tend to be focused on rationalization and cost-cutting, leading to higher unemployment rates [4].

As innovation is an engine for business sustainability, quality of human capital engaged in innovation endeavors significantly impacts the results of process innovation. Scholars highlighted that powerful sources of an organization's competitive advantage consist of knowledge management shared through application of IT in the human resources management processes. This may prevent brain drain and may enable transfer of knowledge among organization's employees [5].

The highest level of innovation is covering organizational settlement and calls for a holistic approach of doing business based on new ways of organizing the work, including introduction of new business processes [1, 3].

In response to this growing need for a thoroughly understanding of organizational innovation, the advent of business process analysis and design has attracted a plenty of studies and debates. The internationally recognized practices have agreed on embedding process analysis under business process management which has been defined as a core facet of management enabling understanding, documenting, modeling, simulating, and executing end-to-end processes toward ongoing improvement of organizational performance [6].

The progress toward organizational innovation by making the best use of process-oriented view takes place in different stages of organizational development, making possible to survive on the long term through a holistic understanding of working

system. Numerous academics have paid attention to the meaning of process thinking as a valuable way to create results to customers, and only the existence of right internal processes may enable to standardize the way information is documented, organized, and shared among different organizational units and stakeholders [7, 8].

To further investigate innovation potential for organizations competing in European Union market, the policy responsible bodies have paid attention to the necessity to fully exploit the market potential of manufacturing industry. The reasons are linked to labor market potential, since it contains one out of four jobs in private sectors and at least another one out of four in associated services that depend on industry as a supplier or as a client. Moreover, almost 80% of all private sector research and development efforts are made in industry as a driver of innovation and a provider of solutions to challenges of our societies [9].

These realities support an emergence of business process management which defines value chain concept with a clear distinction between *core processes* such as research and development, production, marketing and selling, and *support processes* as procurement, human resources, IT, etc. The value chain is closely related to value proposition concept that allows a thoroughly understanding and modeling of an enterprise in a way in which processes and activities with no value added should be eliminated [10,11].

The other facet of organizational competitiveness and innovation is significantly influenced by the globalization of markets, sectors in which organizations are competing, and fast changes in customers' perceptions and expectations, too. The compression of product life cycle, the use of ITC in business processes such as marketing, design, logistics and retails, supply chain management, production planning and customers relationships management require a coordinated effort in capturing customers perceptions and attitudes towards a broader understanding of business stakeholders satisfactions [12,13].

The complexity of these factors enhances the importance of undertaking well defined marketing research processes as a liaison among organization's stakeholders which help improving work and overall business results. The extent and growth rates of marketing research expenditures throughout world have increased the need for more accurately and timely market information so as organizations be able to quickly respond with product innovation and new marketing offerings. Thereby, coping with current market changes involves a thoroughly designing of process variables for marketing research: inputs, activities, and outputs. In this way, a

process analyst may be able to structure the required steps such as research objectives, methods for collecting data and information, techniques for data analysis, and methods to communicate the findings and their implication to organizational decision makers [14].

As marketing research is a sub-process of marketing processes embedded in the core processes of an enterprise, it was supposed that an effective marketing research model would enable an organization to market its innovative products in a straightforward and cost-effective manner, according to the current market trends.

Modeling marketing research workflow has drawn valuable insights from the APQC's Processes Classification Frameworks developed by the world-wide leading organization in business practices, business benchmarking and knowledge management research. These frameworks enable researchers and practitioners to make objective comparison of organizational performance within and among organizations through an out-of-box thinking and

searching for insights not typically found within intra-industry paradigms.

The Process Classification Framework enables an enterprise to properly understand inner workings from a horizontal process viewpoint rather than a vertical functional viewpoint. In this way, it is possible to make a clear distinction between *operating processes* encapsulated in organization's value chain that create added value to stakeholders, and *supporting processes* that enable a coherent functioning of previous ones. In this regard, table 1 shows a synopsis of a high level process framework [15].

The processes from operating chain are responsible for defining business model and strategy, managing products and services portfolios, understanding markets, customers, and capabilities to comprehensively develop appropriate marketing and sales strategies. The chain goes forward to planning and producing portfolio's products and services, aligning required supply chain resources, managing logistics, and finally managing customers' services.

Table 1. Synopsis of organization processes typology

Processes category	Processes types					The goal
Operating processes	Develop vision and strategy	Design and develop products and services	Market and sell products and services	Deliver products and services	Manage customers service	To create and deliver added value to the stakeholders
Support processes	Develop and manage human capital					To ensure a coherent functioning of enterprise, as a system
	Manage information technology					
	Manage financial resources					
	Acquire and construct property					
	Manage environmental health and safety					
	Manage external relationships					
Manage knowledge, improvements and change						

Table 2. The cross-functional role of marketing research process

Processes category	Processes types					Goal
Operating processes	Develop vision and strategy	Design and develop products and services	Market and sell products and services	Deliver products and services	Manage customers service	Creating added value
Marketing research related processes	Survey market and determine customers' needs and wants	Analyze market segments, portfolios and technologies Test market for new/revised products and services	Understand markets, customers and capabilities	Procure materials and services	Measure and evaluate customers satisfaction	Delivering added value
Marketing research workflow	Wide range of marketing research information					Improved stakeholders satisfaction

The supporting chain encapsulates relevant processes accountable for ensuring a properly executing of processes from operating chain such as recruiting, selecting, managing, and developing human resources, managing organization IT services, managing financial resources, managing organization assets, managing operations and stakeholders' relationships required for sustainable development of an organization, and finally managing knowledge and organizational improvements and changes.

It is worthy to emphasize the role of marketing research is mainly cross-functional since it transcends the boundaries of different internal processes and encompasses a wide range of information depending on key decision makers and other stakeholders [16].

As table 2 reveals, processes from operating chain are fueled with information from marketing research related processes. Development of organization vision and strategy is tightly connected with outputs from market survey which give valuable clues about customers' needs and wants. To further design and develop the portfolios of products and services, an organization has to focus on analyzing market segments and testing market for new or revised products and services. Selling and delivering the products to markets require understanding customers and organization's capabilities, too.

Last but not least, managing customers' services is fed by outputs from marketing research process dealing with measuring and evaluating customers' satisfaction.

Thereby, the necessity to accurately design and model a marketing research workflow is demonstrated by accomplishing a high level of satisfaction for all stakeholders involved, in an effective and efficient manner.

The hierarchical decomposition of inner workings emphasizes the role of marketing research flow in performing related processes embedded in value chain processes, starting with the process "survey market and determine customers' needs and wants" and finishing with the process "measure and evaluate customers' satisfaction".

3. Research methodology

Tackling an organization's innovation level, the research methodology attempts to feed knowledge data with fruitful processes models aims to accelerate innovation potential needed for new products developments or new marketing offers, based on thoroughly understanding of an organization's stakeholders needs. The authors took advantage of the Event-driven Process Chain (EPC) tool and modeled the marketing research sub-process [17]. The method uses business process modeling notation (BPMN), a graphical vocabulary specifically

developed for business process design, being used for creating graphical models for process operations, named flowcharts [18].

According to specialists, process flowcharts are seen as easily understandable by all users starting with a business analyst that designs the processes to a technical person responsible for implementing, managing and monitoring those processes. The method allows modeling a flow diagram using: activities, events, and logical connectors as syntax elements which enable the conceptual integration of information system design [18, 19].

Generally speaking, the Event-driven Process Chain (EPC) technique is a modeling language for representing logical and temporal dependencies of activities encompassed within any type of process. The process flow diagram using EPC answers to the question "what should be done?", enabling to define and design required activities, corresponding events, and possibility to create a modular framework based on process interfaces, too [20].

In this regard, table 3 presents the syntax and semantic aspects for designing and modeling a marketing research workflow with the aid of EPC that enables a conceptual integration of information design.

Table 3. The syntax and semantics of EPC

The syntax	The semantic aspects
Activity	Describes clearly and concisely the action to be performed
Event	Describes pre-conditions and post-conditions of functions Do not consume resources of any kind
Process interface	Marks the necessity of executing the process in question between a flowchart's predecessor element and a flowchart's successor element. May indicate an input from another process, an output for other process, or an output for another process with feedback loop after the execution of that process.
Connectors	Describes the precedence relationship between activities/ process interfaces - SPLIT connectors: AND-split (A) - triggers execution of all subsequent branches in concurrency; OR-split (O) - triggers execution of any combination of multiple subsequent branches, based on a condition of at least one branch execution; XOR-split (X) - represents a choice between one of several alternative branches and requires execution of selected branch. - JOINT (J) connectors: have multiple incoming arcs with one outgoing arc.

4. Results and discussions

The result of modeling marketing research workflow is represented by a process diagram in fig. 1. The process starts with the first main activity consists in assessing the necessity to commit a marketing research project. This requires accurately defining and analyzing organization's business need that triggers the market survey.

In case the business need is not comprehensively defined, it is triggered an execution of a process interface aimed at documenting all high-level information about the context of research, research objectives, high-level requirements and assumptions, targets to research, a roughly description of decision makers, time and cost constraints, key milestones, budget estimates, key stakeholders, and the person in charge with marketing research endeavor. The outputs of this process interface have to be sent to first activity to be analyzed, evaluated, and finally validated by all stakeholders involved.

The second main activity consists of elaborating a marketing research brief and requires a formally authorization from stakeholders. In case this brief is not validated, it is triggered an execution of a process interface aimed at reviewing and regulating the initiating effort for marketing research. The outputs of this process interface have to be sent to second activity to be evaluated and finally validated.

The third main activity, defining and elaborating marketing research proposal, is obtained by performing a set of interrelated steps aiming at documenting in details the following aspects:

- background – context of research, assumptions and major risks;
- problem definition – diagnosing the problem and identifying specific components for marketing research problem;
- research objectives – research questions or hypotheses that may be tested;
- research design – exploratory, descriptive, or casual; methods of collecting data, justification, and a sampling plan with details of the sample size;
- data collection – what techniques are to be used, the extent to which results will be interpreted in the light of defined marketing objectives;
- reporting – framework and form of final report;
- timetable – project schedule, broken by phase and the critical path;
- budget –an estimated budget by phase or major deliverables;

- stakeholders – research organization, key researchers working on the project, and other experts or decision-makers.

All of these interrelated steps are tracked and reviewed on ongoing basis, followed by identification and initiation of corresponding changes with the aid of related processes interfaces. The iteration loops are executed until the research proposal content meets the criteria defined, being validated by all stakeholders involved.

The fourth main activity deals with a field work and data collection from market and customers' needs and wants. With the aid of process interface, all activities performed are tracked and reviewed on ongoing basis so as to assess measurements and trends and to manage corresponding changes.

The outputs of the fifth main activity, responsible with analyzing data and reporting findings of marketing research, are feeding the marketing research report. Finally, to formally close out a marketing research process requires obtaining financial, legal, and administrative closure, collection of lessons learned and transfer of ownership to key decision makers.

In this way, through a conceptual and graphical representation of marketing research workflow, an organization fostering innovation in its working environment may deliver desired results to stakeholders by adding value to inputs with the aid of process work.

5. Conclusions

Organizations striving innovating their operations to improve stakeholders' satisfaction will adopt and leverage processes frameworks to organize workflows and facilitate interactions among working groups.

With a strong focus on innovation, the initiative of modeling a marketing research workflow ensures ongoing improvements of organizations' operations because it enhances the value of marketing information whilst decreasing the corresponding costs.

Regardless of the process in which is accomplished, a marketing research workflow aims to define, gather, and assess information needs and provides relevant and effective information to stakeholders.

The model proposed underlines benefits of modeling and simulating a marketing research workflow by taking advantage of a rigorous discipline in related workings, with high impact on stakeholders' satisfaction.

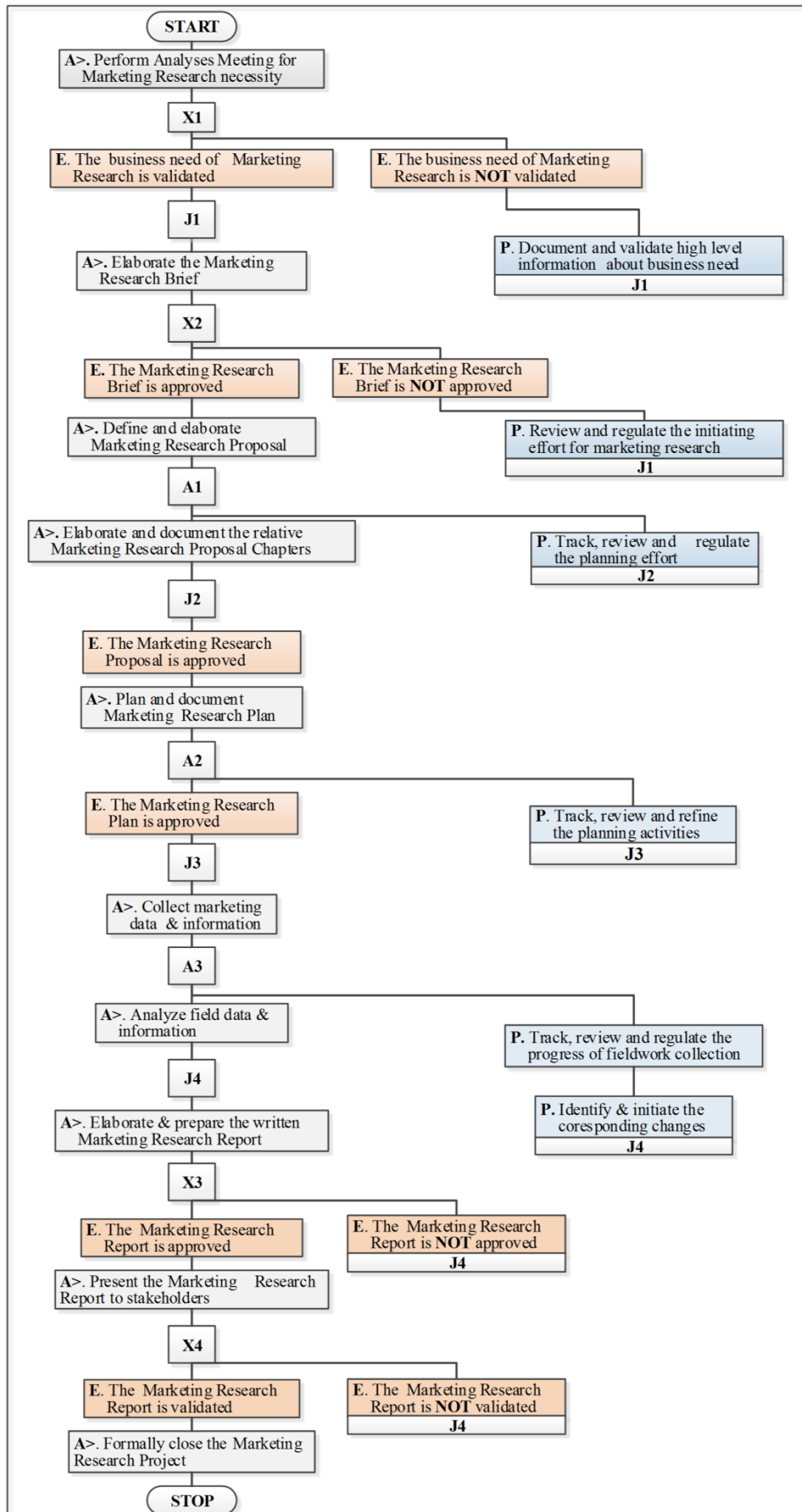


Figure 1. The marketing research process diagram

Thus, enhancing the chances of success and improving stakeholders' satisfaction are possible with the aid of systematic and objective marketing research activities that would satisfy requirements in terms of accurate, actual, opportune, relevant and exhaustive information about customers' perceptions and attitudes, and market trends.

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