A Rationale for Value Engineering Decisioneering in the Project Management Office (PMO)

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Abstract

This research paper seeks to justify the methodology of value engineering (VE) – also referred to as Value Management (VM) and Value Analysis (VA) – as an innovative decision making tool in the project management office (PMO). The unprecedented proliferation of PMO in the private and the public sectors, including the increasing rate with which corporations gravitate toward executing operating deliverables, initiatives and strategic plan as business projects (work packages), are clear indications of the continued growth and relevance of the project management office as a center of excellence in organizational management.

The Wall Street crash in the 1930s led to the emergence of corporate governance in a desperate bid to contain agency problems. This resonates with the ongoing global economic recession given the monitoring and disciplining cost (stimulus) arising from the same agency problem. The current economic dispensation requires exceptional methodical engineering approach to decision making to optimize organizational scarce resources and mitigate inevitable risks. Going forward, the knowledge management process that organizations leveraged to achieve current industry positioning, may not get them where they need to be to remain competitive in the new and flat global market.

Introduction

The PMO is still in its early adopter stage of organizational management the world over, most especially in less developed economies (Cable UMD, 2008). Considering the 21st century challenges where economic agents can plug-n-play from any corner of the world, it becomes imperative for organizations to employ unconventional and innovative management technique such as value engineering methodology as a lean management strategy. Proper application and deployment of value engineering methodology in the PMO will steer organizations on the path of sustained growth by minimizing cost and maximizing the functionality of scarce resources without necessarily jeopardizing quality and customer satisfaction.

This research paper acknowledges the prevailing decision making heuristics and biases in the PMO. However, currently at its best, the PMO decision making heuristics and biases deliver project portfolio at 67% efficiency (PMI, 2011). This dismay performance signals a clarion call for the introduction of a new mechanism of decision making. The application of value engineering methodology will result in the discovery of a new, consistent and repeatable decision making process capable of increasing the PMO efficiency and the overall organizational performance.
Value engineering is a systemic, function-oriented problem-solving technique the PMO can adopt and adapt as a decision making tool to achieve operational excellence in project portfolio management to contribute to the long term growth in the organization (Younker, 2003). Proper deployment of VE methodology ensures rational selection and execution of investment alternatives, with a multiplier effect on the strategic business outcome the portfolio was designed to achieve.

The central theme of VE is value improvement and functional performance enhancement. I.e. Vmax = F/Cmin (WHERE; V= value, F= function, and C= cost). Fallon value theory expanded the equation with the utility function, expressed as V = n X a / c (WHERE; V= value, N= needs, A= ability to satisfy, and C= customers). Fallon further posited that customer determines the value, i.e. CV= Pf / Pr (WHERE; CV= customer value, Pf= performance, and Pr= Price. (Fallon, 1978). VE technique is used to break down complex procedure to reveal latent information and critical variables i.e. performance-cost mismatches and function-performance relationship, required to refocus scarce resources to achieve strategic business objectives (Stewart, 2007).

VE methodology employs the concepts of job plan protocol (JPP) and function analysis system technique (FAST) to sequence problem solving and decision making parameters. The job plan protocol is anchored on six steps: information gathering, creative brainstorming, ideas evaluation, solution development, report presentation and, implementation. Function Analysis System Technique (FAST) is a creative diagramming technique used to depict and test the validity, dependency and functional relationships among multi-dimensional components to improve the capacity for problem solving and decision making (Kaufman, 1987).

FAST has the capability to model complex problems, streamline processes and foster bilingualism (mutual understanding between strategy planners and project portfolio leaders) which engenders effective and supportive interdisciplinary communication among stakeholders. FAST revolves around the logical analysis of “how” and “why” to determine the basic function, the secondary function, the lowest order function and, the highest order function in a system, a product, a service or process.

The advent of IT enabled computer programming and computational models have largely aided the effectiveness of FAST in the areas of cost modeling and life cycle analysis. This allows scalability when creating a FAST model to improve a system or a process i.e. decision making. The effectiveness of FAST is more evident when dealing with heuristics and biases that cannot be resolved using simple rationalism particularly in risk management.

Value engineering methodology has been applied in new product development, new market entry, new strategy development, knowledge management, problem solving, creativity, including organizational decision making process which is the VE rationale for this research paper. Consequently, several creativity techniques such as Gordon technique, morphological analysis and laddering have been employed to substantiate
the validity of value engineering methodology. Miles (1989) showcased several case studies of successful application of VE methodology in different sectors.

While Frazer (1987) acknowledged the effectiveness of value engineering methodology in organizational change management process, there is no evidence in the literature where VE technique has been applied in the PMO. This creates a knowledge management gap this research paper seeks to point out given the enormity of the fact that value engineering methodology will improve PMO decision making modalities as a creative, innovative and result-oriented investment decision making tool.

Kerzner (2010) identified 3 types of PMO. Strategic PMO is a macro-level enterprise-wide PMO with a focus on the overall strategic business objectives. Functional PMO is a mere project office established with a mandate to execute individual project. Tactical PMO is a micro-level business unit PMO that provides support functions to maximize scarce resources in a business unit within the organization. However, it should be noted that regardless of the type of PMO and the organizational structure (matrix, projectized or functional), the primary goal of any typical PMO is to rationalize scarce resources to support and/or drive the strategic business goals of the organization.

Crawford (2011) concludes that the establishment of PMO sometimes results in conflicts and confusion (particularly in weak matrix organizations) between project leaders and strategy planners, especially with a lack of streamlined bilingual structure to foster a common business language. The overall effect of the conflict jeopardizes the PMO mandate and the strategic business objectives the PMO was established to support and/or drive. The application of VE methodology will fill this vacuum by encouraging supportive communication between the two mutually inclusive organization decision drivers and makers.

Two central bases of PMO arguments are prevalent. One posits that PMO is a repository and a non-dynamic collector of executable projects from different business units without real organizational clout on decision making and corporate performance. The other argument opines that PMO is a dynamic entry port into an organization most especially in organizations without prior portfolio management internal control procedures. Here, PMO is perceived as the harbinger of decision making regarding investment alternatives and, a major influence on corporate performance.

Information technology has enabled a rapid growth in knowledge management and, the ongoing expansion of the global economy and its attendant challenges has given rise to another novel perspective of the PMO. Duggal (2001) advances a fourth type of PMO in his work on “Building a Next Generation PMO”. Duggal puts forward an “Innovative PMO” akin to strategic PMO but with a higher level of mandate to ensure continuous improvement via creativity, strategic innovation and new business development. Innovative PMO addresses the dynamic nature of the new and flat global economy which is repositioning the PMO as a major driver of organizational performance.
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PMO also serves as an internal consulting unit that provides core portfolio management advisement support functions to different business units in the organization. These support functions may be limited to proposal development, training and mentoring, risk management, post project review, change management processes, etc, without getting directly involved in project and portfolio execution.

Pennypacker (2005) concludes that PMO decision making rule of thumb is largely driven by the capability maturity model. Oftentimes, these heuristics and biases are not only irrational, but also biased particularly with regard to informal projects (unchartered) such as Nike (just do it projects), Rogue (bully projects), Zombie (killed projects that refused to die), Vampire (resources sucking projects), and Phoenix (dead but reincarnated projects), (West UMD, 2010). While ordinary rationalism hypothesis may be used to address these anomalies in project selection, prioritization and execution process, most times, it is inadequate. This necessitates the application of a creative and innovative model like VE methodology to put these heuristics and biases into proper perspective.

Given the continued growth rate of the PMO phenomenon, the development of various organizational project management maturity models such as the Capability Maturity Model (CMM), PMI’s OPM3, etc, become more relevant. However, these models inevitably calls for the development of an innovative approach, i.e. VE methodology, to complement the efficacy of these organizational capability frameworks designed to set project portfolio management direction and drive investment decision making process.

Typically, PMO has a review board or an investment council that assesses formal projects (chartered) investment opportunities and makes investment decisions regarding investible alternatives. Strategic plan, vision and mission statement, returns on investment (ROI), level of organizational capacity and capability, technology, economic feasibility and risk content, are among the major criteria for project selection, prioritization and execution. In spite of these PMO standard considerations in investment decision making process, inefficient scalable pipeline management has resulted in missed schedules, unmet milestones and cost overrun.

A number of numeric factors such as payback period, average rate of return, profitability analysis, net present value, and non-numeric factors such as operating necessity, competitive benchmark, product diversification, marketability, are some of the PMO parameters for investment decision making. Value engineering methodology can be used as a “nuts and bolts” mechanism to model an investment decision making theoretical framework that recognizes these heuristics and biases at a higher level of abstraction by asking the “why” questions and devising the “how” strategy to improve decision making the process to achieve the strategic objectives.

The challenges faced by organizations in the establishment and systemic management of the PMO, especially the development of decision making framework as guidelines for investment decision making process cannot be overemphasized. The capability and support functions provided by PMO are leverages upon which organizations build their
competence in portfolio management. Value engineering methodology is a catalyst capable of repositioning the PMO competency by integrating economies of scale into project portfolio management decision making process to optimize scarce resources.

According to PMNetwork (2012) strategic innovations in new services, new products and new processes remain the engine of organizational growth in the new global economy. Hence, Kerzner (2010) concludes that in order to avoid or improve on the ongoing downward corporate reorganization and restructuring, the PMO must be strategically re-positioned to support business outcomes and achieve long-term vision.

The high likelihood of PMO failure due largely to inefficient knowledge management, including a lack of proper alignment of project portfolio with the strategic goals, and most especially, a lack of blueprint for effective decision making process, signals the need for an innovative process like value engineering methodology in the PMO. VE methodology ensures higher functional performance of the PMO scarce resources, the realization of project output and the strategic outcome. The proper application of value engineering methodology in the PMO has a tendency to reposition the PMO as an effective change management mechanism.

**Summary of Research**

This research paper concluded that PMO is currently growing at a high rate. This unprecedented growth signals the need for a systemic and scientific method of selecting, prioritizing, executing and managing project portfolio in response to the growth-oriented challenges faced by the PMO. The PMO repositioning process necessitates well streamlined bilingualism between strategy planners and PMO leaders. The mutual understanding between these organizational drivers and decision makers eases the procedures of customizing efficient investment decisions based on the ideation, the nature, and the vision of the organization.

Considering the current growth rate of the PMO in organizational management particularly the implementation of vision-driven strategic plan and corporate initiatives as work-packages, going forward, new generations of CEOs may not necessarily be HBS and Wharton MBAs but rather, well grounded PMO thought leaders well-versed in project management competencies, strategic innovation and portfolio leadership.

It should be noted that this research paper is a ground breaking effort to reposition the PMO to achieve long-term strategic business objectives for organizations using VE methodology. Nevertheless, this research paper has succeeded in laying the foundation upon which further researches can leverage to validate the impact of VE methodology as an investment decision making tool in the PMO. The development of value engineering management policy document for the PMO is inevitable as an internal control procedure to ensure continuous improvement. The policy document will establish and stabilize VE best practice in the selection, prioritization and execution of portfolio investments in the PMO to achieve the strategic goals and long-term growth.
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