2017

Shape a Business Case Process: An IT Governance and IT Value Management Practices Viewpoint with COBIT 5.0

Cristiano Pereira
STIC- Universidade de Aveiro, cristiano@ua.pt

Carlos Ferreira
DEGEI/IEETA – Universidade de Aveiro, carlosf@ua.pt

Luís Amaral
University of Minho, amaral@dsi.uminho.pt

Shape a Business Case Process: An IT Governance and IT Value Management Practices Viewpoint with COBIT 5.0

Cristiano Pereira, STIC – Universidade de Aveiro, Portugal, cristiano@ua.pt

Carlos Ferreira, DEGEI/IEETA – Universidade de Aveiro, Portugal, carlosf@ua.pt

Luis Amaral, Universidade do Minho, Portugal, amaral@dsi.uminho.pt

Abstract

The growth in IT investments increases the concern of organizations and their leaders to ensure the expected business value from these investments. Business value derived only emerges through business changes and innovations, i.e., organizational transformation. Organizational change through digital transformation is a fundamental component for business value resulting from IT investments and a driver of further change. Organizations perceive the Business Case as a critical instrument to realize the potential value from IT. A well-developed and intelligently used business case is one of the most valuable tools available to management. This paper embraces an oriented practical perspective to existing Enterprise Governance of IT and IT Value Management professional frameworks. A literature review methodology is performed in academic and practitioner literature. Based on literature findings, we propose a based model that supports organizations in development a maintenance of a Business Case Process grounded on COBIT 5.

Keywords: Enterprise IT Governance; IT Value Management; Business Case Process; COBIT5; VAL IT 2.0

1. INTRODUCTION

Organizations, public and private, have been facing in the last years with an increasing dependence on Information Technologies (IT), essential for their sustainability and development, in the support, operation and prospect of their business. The growth in IT investments increases the concern of organizations to ensure the expected benefits (Kelly, 2014), which point to cases of failure with investments made in IT (Wilkin et al., 2013). This is one of the most common dilemmas faced by organizations and their leaders, namely how to guarantee the value of high IT investments; value should not be view only as a financial return, but also as other strategic factors that affect the business.

A superior understanding of how to deliver value to the business from IT investments initiatives is critical. Furthermore, ITGI (2008) refer to the need of "*a comprehensive, proven, practice-based structured governance framework that can provide boards and executive management teams with practical guidance in making IT investments decisions and using IT to create enterprise value*". However, business value derived from IT investments only emerges through business changes and

innovations (Peppard & Ward, 2004), *i.e.* through business transformation. The ability to successfully manage organizational transformation has become a competitive necessity for organizations (Cha, Gregor, & Fernandez, 2008; Uhl & Gollenia, 2012; Agarwal & Brem, 2015), that shouldn't be viewed as an isolated practice but a set of practices and processes required for the organization to evolve in reaction to environmental changes. Organizational transformation is a fundamental component of the business value resulting from IT investments and a driver of further change (vom Brocke et al., 2016). Organizational change cannot be separated from organizational strategy, or vice versa (By, 2005). Saebi, Lien, & Foss, (2016) stated that an organization propensity to change their business model depends on what type of strategic orientation the firm pursues. This strategic view point is particularly important in dynamic environments, in which the rate of change is high (Achtenhagen, Melin, & Naldi, 2013).

Instead of considering IT investment as separate investments decisions, organizations should adopt a series of adaptive and ongoing practices, which constitute an organizational IT Value Management (ITVM) capability. According to Keyes-Pearce (2005), ITVM can put a company in a privileged position to leverage the value of IT through the managers knowledge of business processes, its strategic intent and how IT can enable relevant strategic initiatives through the influence of IT Governance (ITG) mechanisms. This transversal characteristic of ITG across all organization (Business and IT), is sustained by several authors (Thorp, 2003), (Weill & Ross, 2009), (Peppard, 2010), which point to a more broad IT Governance concept called Enterprise Governance IT (EGIT). In the definition of EGIT, De Haes & Van Grembergen (2015), consider it encompasses an organizational capacity, and the outcomes it enables, specifically business/IT alignment and in the end more value creation out of IT-enabled investments.

Getting value from IT to business and measuring it is of particular importance to the domain of Governance. One of the reasons that makes it difficult to obtain value for the business from IT enabled investments is the ambiguity in identifying what is value for the business. In the late nineties, Simmons (1998) points the need for agreement on what constitutes value, before any outcomes can be determined, this misperception and complexity about value creation is also mentioned by Laursen & Svejvig, (2016). The debate becomes even more complex when researchers distinguish between what a particular outcome of an IT investment is, and how this outcome is interpreted (Schryen, 2013).

The nature of value differs for different types of organizations (Yassaee & Mettler, 2015). For profit organizations, value tends to be viewed in economic terms, while for non-profit organizations, like public sector, value is more complex and is often non-financial in nature. All organizations are interested in finding ways in which they can ensure their long-term viability, private firms look to maximize their shareholders value, while non-profit organizations search for optimize their effectiveness (Gomes & Romão, 2015). In short, value should not be understood

only as a financial return, but also as other strategic factors that influence the business (Pereira & Ferreira, 2015).

In spite of high importance of IT investments in terms of monetary value as well as strategic implications, organizations have difficulties in determine the optimum level of IT investments to realize (Arora & Rahman, 2016), to achieve expected benefits. Expected benefits from IT investments were repeatedly unachievable because these benefits were exaggerated just to obtain funding or there was insufficient understanding of the business changes needed to realize them (Ward, Daniel, & Peppard, 2008).

The journey from identification of how IT can enable relevant initiatives (IT strategic planning) to effective business benefits realization is often long and complex. To help in this challenge organizations perceive the **Business Case** (BC) as a critical instrument in order to realize the potential value from IT investments (Swanton & Draper, 2010; Maes et al., 2014; Nielsen & Persson, 2017). ISACA[1], reinforces its importance, considering that, a well-developed and intelligently used BC for a business transformation program, is one of the most valuable tools available to management. Actually, researchers tend to shift studies of BC from just a document to a process thinking as it may contribute to the IT enabled investment success (Maes et al., 2014) (Nielsen & Persson, 2017). They urge to enrich the content of a BC with qualitative information in addition to the more financially arguments that are mainly included nowadays, and focus on how a BC can be used throughout the entire investment life cycle (a process approach).

With this call, and based on previous research, this paper embraces a more oriented practical perspective to existing EGIT and ITVM professional frameworks. Thus, the aim of this work is, through a literature review of academic studies and analysis of professional literature, to propose a process based model that supports organizations in developing the maintenance of a Business Case Process, grounded on COBIT 5 and VAL IT 2.0 Frameworks available from ISACA.

The remainder of the paper is organized as follows: in Section 2 the research methodology is described. Section 3 outlines the background of the study with a literature review on the main themes that support this research: IT Value Management dimensions; the role of a BC in IT enabled investments and the BC process approach´s. In Section 4, we present the Business Case process model grounded on COBIT 5, and a brief description of each of the main practices and activities that compose our model. Finally, some conclusions, along with future research proposals are outlined in section 5.

---

[1] Previously known as the **Information Systems Audit and Control Association**, ISACA now goes by its acronym only, to reflect the broad range of IT governance professionals it serves.

2. RESEARCH METHODOLOGY

The methodological approach, to develop our model, is based on a literature review. According to Webster & Watson, (2002) the literature review on sufficiently explored topics, should propose a conceptual model that synthesizes and contributes to existing knowledge. We consider that the degree of maturity of research in this subject is enough to follow the guidelines proposed by Webster and Watson. The research process was supported in each of the phases of vom Brocke et al., (2009) framework. The first phase of the process aims to frame and define the scope of literature review. In second phase, the model was developed (section 4.1) mapping the key concepts under study, and simultaneously exposing the existing gaps, thus opening the opportunity for this study. In the third stage, a literature search process was carried out with reference to Business Case, Enterprise IT Governance, and IT Value Management practices. After collecting the literature on the subject under investigation this should be analyzed and synthesized. The last step, of the process, consists precisely in this analysis and synthesis of the results achieved (section 4.2).

In this article, the literature review focuses mainly on academic and professional publications with the objective of identifying a set of processes, practices and activities related with BC process as a tool in a neutral or independent perspective. The search has been performed in multiple e-databases (EBSCO, JSTOR, WILEY and ScienceDirect) for scholarly peer reviewed journal publications without any date range restriction, mentioning "value management", "IT investment", "IT investment lifecycle", "business case" and "information systems" or "information technology" in the 'full text'. Each paper was then examined through qualitative content analysis to interpret the context and application of practices for business case process, and the data collected were organized according the model in section 4. The results obtained in this research are considered of particular interest to academics and professionals who carry out their activity in this area of knowledge.

3. RELATED WORK

In this section, we focus on the literature to present the main themes, which support our research: IT Value Management, IT Investment Lifecycle and the role of Business Case as an instrument to all management levels across the business and IT, for managing the investments through its full economic lifecycle.

3.1. *Dimensions of IT Value Management: Lifecycle and Domains*

We can conclude from De Haes & Van Grembergen, (2015) definition of EGIT, that there is a direct relationship between EGIT and the creation of business value from IT-enabled investments. In section 1, we also refer that interpretation of value obtained from IT investments differ among

organizations; however, regardless of the nature of value, all organizations want to achieve the estimated benefits for their IT enabled investment programs, consisting of one or more projects belonging to an overall IT enabled business investment portfolio (Maes et al., 2011).

Organizations only achieve a positive impact from IT investments if they introduce comprehensive value management practices, that facilitate and ensure the identification and maximization of value creation from IT enabled investments, through all entire lifecycle of the investment, since in each of its stages there are different activities and objectives to achieve (Keyes-Pearce, 2005; Maes, et al., 2015).

Based on this assertion, and in previous works (Swinkels, 1997), (GAO, 2004), (Berghout et al., 2011), we establish a conceptual model (Figure 1), with two distinct but related dimensions, lifecycle of investments and research domains of IT Value Management. This model provides an intuitive representation of the research domains of ITVM, across the various stages or phases of the lifecycle of IT enabled investments in which they have a direct influence.
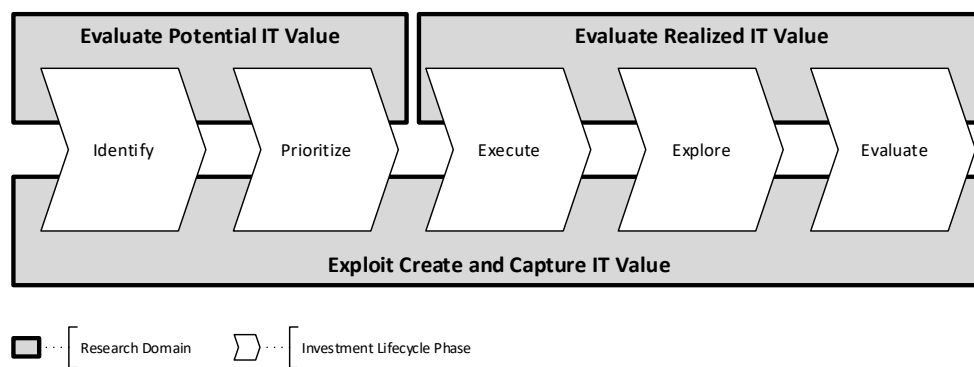

Figure 1 – Conceptual model - Lifecycle of IT enabled investments and ITVM research domains.

This two-dimensional relationship emerge from an initial screening and analysis of previous research, which identified three areas of research, where various authors focus their work, namely: i) related to the identification and **evaluation of the potential value** of investments. (Walter & Spitta, 2004) (Silvius, 2008) (Frisk, Lindgren, & Mathiassen, 2014) (Morrison-Saunders, Bond, Pope, & Retief, 2015); ii) mechanisms and tools to measure and **evaluate the realized IT value**. (Chang & Ye, 2011) (Song & Letch, 2012) (Petter, Delone, & Mclean, 2012) (Ceric, 2015); iii) processes, activities and management approaches related to **exploiting, creating and capturing IT value**. (Thorp, 2003) (Keyes-Pearce, 2005) (Maes, De Haes, & Van Grembergen, 2012) (Maes et al., 2015).

The second dimension, lifecycle of IT enabled investments, arises from the need to act in the overall business/IT investments. ITVM mechanisms embrace not only the individual investments but also all business investments portfolio, and applying ITVM practices at each stage of investments lifecycle (ITGI, 2008; (Maes et al., 2015). IT Value Management practices should

initiate before the investments itself (Davern & Kauffman, 2000; Smith & McKeen, 2003) and must include an evaluation of the benefits obtained in its final phases (Ashurst et al., 2008).

We divide IT enabled investment lifecycle in the following five stages:

i. **Identify** – Initiate the identification of investment opportunities and structure information (vision, objectives, stakeholders, potential benefits) to ensure the alignment between investment proposals and the strategic objectives of the organization.

ii. **Prioritize** – Estimate the potential value of the proposed investments, establish the selection criteria, evaluate the criteria and assign priorities, i.e. based on the analysis of the criteria, decisions are taken on the proposals and their relative priority.

iii. **Execute** – Deals with the management of costs and benefits during the development and implementation of investment projects.

iv. **Explore** – At this stage, the concern is with the valuation of the investment. The investment is in progress and there should be concern about the value that is being delivered, and verify if it can be increased.

v. **Evaluate** – Measure the outcomes from IT investments and verify if the benefits previously planned were achieved; if not, what are the reasons, with a view to implementing future improvements.

The IT Governance Institute in ITGI, (2008) confirms the importance of managing IT enabled investments throughout the entire lifecycle, when it states in one of the seven principles of the VAL IT 2.0, that "*IT-enabled investments will be managed through their full economic life cycle.*". At the same time, this principle emphasizes the importance of maintain a Business Case up-to-date from the initiation of an investment until any resulting service or product is retired. This principle recognizes that there will always be some degree of uncertainty and that variability over time in costs, risks, benefits, strategy, and organizational and external changes must be taken into account in determining whether funding should be continued, increased, decreased or stopped.

The Business Case should not be seen as a static document; it should be viewed as an operational tool that must be continually updated to reflect the reality to support decision making process across all investment lifecycle and not only for initial assurance of resources (Franken et al., 2009, Maes et al., 2014, ISACA, 2016).

3.2. *The Critical Role of Business Case in IT-Enabled Investments Lifecycle*

Multiple studies (J. Ward & Daniel, 2008) (J. Ward & Daniel, 2012) expose evidences that a significant gap in Business Case quality still exist in many organizations, and show that most organizations are not satisfied with many aspects regarding how they manage their IT investments.

Financial management practices can explain some of these difficulties in identifying and delivering real busineˆs benefits from IT investments, organizations tend to focus only on minimizing or reducing costs, and do not focus enough on the business value that IT can generate (J. Ward & Daniel, 2013). Instead of using the BC to gain commitment to do what is necessary to achieve the benefits that justify the IT investment, the proposals appraisal process only seek funding for a given project. Ward & Daniel research´s found that although 96% of organizations develop Business Cases for project investments, 69% of them are not satisfied with the quality or usefulness of those business cases (J. Ward & Daniel, 2012; Uhl & Gollenia, 2012; ISACA, 2016).

The ultimate purpose of a Business Case is to commit the organization to achieving the benefits expressed in it and this does not appear to happen often enough. Generally, BC is seen as a bureaucratic and unavoidable issue to obtain required financial and other resources, with little attention to benefits or changes needed in business to create or sustain value from IT investment.

From the literature review, we can confirm the transversal impact that a Business Case provides to business and IT decision-makers in the creation and delivery of value of investments made in IT. Understanding the relationship between these two viewpoints is vital. An enterprise governance view, and on the other hand an IT view is essential for the success of the Business Case usage. To include these two perspectives a BC must include answers to four types of questions (Thorp, 2003):

i) **Are we doing the right things?** – What is proposed? The investment is in line with our vision? Is the investment contributing to our strategic objectives?

ii) **Are we doing them the right way**? – How will it be done? Is the investment in line with our architecture and other initiatives? What is being done to ensure that it will fit with other current or future capabilities?

iii) **Are we getting them done well**? – Do we have competent and available technical and business resources and funds? What is the plan for doing the work?

iv) **Are we getting the benefits**? – How will the benefits be delivery? Do we have a clear understanding of the expected benefits? Do we have effective IT value management process over the full economic lifecycle of the investment?

To a Business Case integrate answers to these and other questions that will include current, relevant and accurate business focusses information, the development of the Business Case should be aligned with the full economic lifecycle of an investment (Isaca, 2010, Maes et al., 2014). To develop our model we consider the lifecycle of investments with the five phases represented in Figure 1.

3.3. *Business Case Process Approach's*

A Business Case process approach is proposed by several research´s. J. Ward et al., (2008), present a process for the development of a business case composed of six phases, each one with individual tasks. First, business drivers and investment objectives must be proposed and defined. Second step identify benefits, measures and owners who are responsible for provide value for each benefit identified previously. The third structure the benefits, taking in consideration two factors: the type of business change that gives rise to the benefit and how much already known or can be determined about the benefit before the investment is made. In phase four, identify organizational changes enabling benefits. Next step, determine the explicit value of each identified benefit, and finally in step six, identify costs and associated risks that will or could result from the investment.

Based on an expert view on Business Case usage, Maes et al., (2014), follow a similar approach and propose a business case process, composed of multiple practices aligned in a simple three steps investment lifecycle: Before implementation, during implementation and after implementation of the IT enabled investment.

From a more practical or industry perspective, ITGI present a guide to develop a business case, using the VAL IT 2.0 Framework (ISACA, 2010). This process based guide address the full lifecycle of develop and maintain a business case, with a set of VAL IT 2.0 processes and key management practices.

In the same line, business case process approach, of these previous studies, we develop and present in the next section, a process based model to develop and maintain a business case process, grounded on COBIT 5, VAL IT 2.0 and IT Investment lifecycle.

4. A BUSINESS CASE PROCESS MODEL: BASED ON COBIT 5 MANAGEMENT PRACTICES

With the purpose of presenting to organizations concrete solutions that support daily practices of Enterprise Governance of IT, several options have been made available, each one with its own perspective. While Frameworks like ITIL, CMMI or Prince 2, are more related to project management: ITIL has a service delivery focus; CMMI provide guidance for developing or improving processes across a project; and Prince 2 is a high-level project management and control methodology. We focus our attention in two of the most recognized and well-known proposals in the IS/IT practitioners communities, Val IT 2.0 and COBIT (Pereira & Ferreira, 2015; Devos & Ginste, 2015; El, Youssfi, & Boutahar, 2016).

COBIT 5 version was released in April 2012 (ISACA, 2012a); according to ISACA, COBIT 5 provides a comprehensive framework that helps organizations reach their goals for IT governance and management in a holistic manner across the organization, encompassing the various business areas and IT. VAL IT is a framework developed by ITGI to ''*unambiguously measure, monitor*

and optimize the realization of business value from investment in IT" (ITGI, 2008). When developed VAL IT was indicated to be used in conjunction with COBIT 4.1, which sets ''best practice for the means of contributing to the process of value creation''.

However, in COBIT 5, ISACA integrated all three most important frameworks in COBIT: COBIT 4.1; VAL IT 2.0; and RISK IT, as such becoming a "one-stop-shop" to enter ISACA's body of knowledge. This integration is referred to principle 3 of COBIT 5, *Applying a Single, Integrated Framework*" which describes that COBIT 5 aligns with other relevant standards and frameworks at a high level and thus can serve as the overarching framework for governance and management of enterprise IT.

A second essential principle that fits in our model is the fourth principle of COBIT 5 "*Enabling a Holistic Approach*" which explains that efficient and effective implementation of governance and management of enterprise IT requires a holistic approach, taking into account several interacting components, such as Processes, Structures and People across all organization.

Considering that a BC process should be developed from a strategic perspective, from top to down, starting from the identification and understanding of the business outcomes and then go to a more detailed description of critical tasks and milestones and bearing in mind the integration of VAL IT 2.0 into COBIT 5, the choice of this framework to develop our model was a natural choice.

4.1.   *Proposed Business Case Process Model*

Our proposed model (Figure 2) is based on the premise that a business case document, should not be viewed as a static document, instead should be consider a live document that was build and maintained across all the full economic lifecycle of an investment, or a portfolio of investments.

Supported on a careful analysis of ISACA publications, "*The business case guide: using VAL IT2.0*" (ISACA, 2010). "*COBIT 5 A Business Framework for the Governance and Management of Enterprise IT*" (ISACA, 2012a) and "*COBIT 5 enabling processes*" (ISACA, 2012b) and in other academic literature we identify and propose five COBIT 5 main management practices that could be applied in an organization to develop or improve the business case process.

The five main management practices are: i) APO05.03 – Evaluate and Select Programs to fund; ii) BAI01.02 – Initiate a Program; iii) BAI01.03 – Manage Stakeholder Engagement; iv) Develop and Maintain the Program plan; v) BAI01.06 – Monitor, Control and Report on the Program Outcomes (ISACA, 2012a).
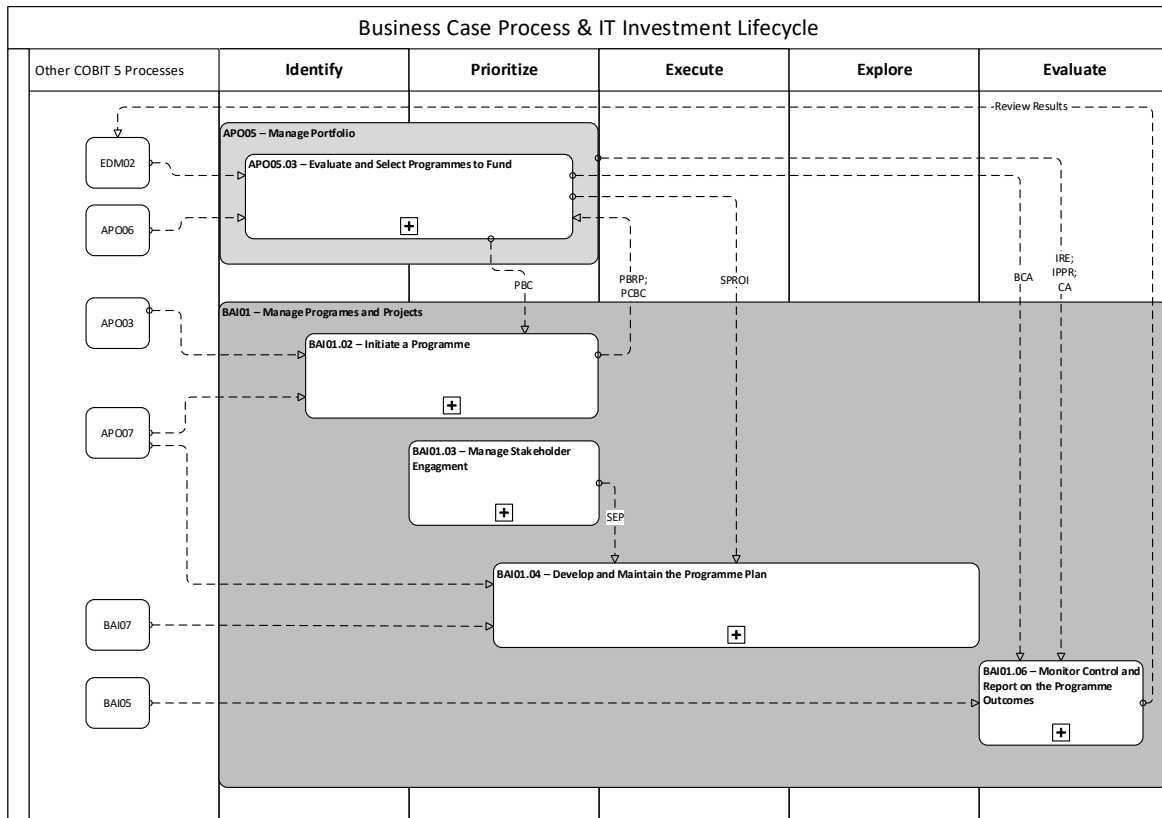
Figure 2 – Business Case Process Model - Processes and Management Practices from COBIT5.

In the next section for each of the key practices identified previously, we detailed on what are the main activities, for each phase of the IT investment lifecycle, which will contribute to build and maintain the BC process. We also refer some inputs and outputs to each management practice and or process.

4.2. *Main practices and activities in business case process: A COBIT 5 perspective*

Proposed practices should run in an orchestrated order to fit in each of the phases of IT investment lifecycle. These two components (lifecycle phases and COBIT 5 Management Practices) constitute the process model illustrated in Figure 2.

The two main COBIT 5 processes that contribute to the development and maintenance of the business case across all IT investment lifecycle are: i) APO05 – Manage Portfolio Management; ii) BAI01 – Manage Programs and Projects (ISACA, 2012b). The purpose of each process are respectively; Optimize the performance of the overall portfolio of programs in response to program performance and changes in priorities and demands of enterprise, and for BAI01, realize business benefits, reduce risk of unexpected delays, costs and value erosion, improving communications an involvement of all stakeholders, ensuring the value and quality of project investment deliverables.

4.2.1. APO05.03 - Evaluate and Select Programs to Fund

Recognize investment opportunities to create value in support of the business strategy. Classify each identified opportunities in line with the investment portfolio categories. Explain expected outcomes to business and identify at a high level all organizational initiatives (process, people, and technology) required to achieve the expected outcomes. After this identification, an initial triage, should be made, through the assessment of the impact of proposals on the overall investment portfolio, decide which candidates programs should be moved to the active investment portfolio.

An initial program business case (PBC), with benefits (financial and non-financial), resources needed and associated risks, is an output from APO05.3 to the BAI01.02 management practice. A second output is the Selected Programs with ROI milestones (SPROI), used later in the BAI01.04 management practice. The process *EDM02 – Ensure Benefits delivery* contribute with two inputs information: i) the result of evaluation of investments and strategic alignment; ii) investment classification and criteria selection. From *AP06 – Managed Budget and Costs*, process information about budget allocation is another fundamental input to APO05.03. Finally, from BAI01.02, two inputs, Program Benefits Realization Plan (PBRP) and Program Concept Business Case (PCBC).

After these initial activities, or in parallel, with APO05.03, the BC process flows to management practice *BAI01.02 – Initiate a Program*.

4.2.2. BAI01.02 - Initiate a Program

Develop the initial Program Concept Business Case to describe the business outcomes to which the potential program will contribute, and how contribution will be measured. These activities should involve all key stakeholders. This initial concept business case would identify alternative courses of action to achieve the desired outcomes. Assess the relative benefits, costs, risks, and timing for each identified course of action, and select the course of action that has the highest potential. Develop a benefits realization plan that will be managed throughout the program to ensure that planned benefits always have owners and are achieved, sustained and optimized. A final activity is the submission for in-principle approval the initial (conceptual) program business case (PCBC), providing essential information for an adequate decision-making.

The two outputs from this management practice are Program Benefits Realization Plan (PBRP) and Program Concept Business Case (PCBC). The COBIT 5 process *APO03 – Manage enterprise architecture*, contribute to develop the PCBC with information input, like the resource requirements and a detailed description of the implementation phase. From process *AP007 – Manage Human Resources*, information about skills and competencies that are necessary, contribute to prepare the PBRP. If decisions about the proposals are in order to go, a dedicated

manager for the program should be appointed, with the right competencies and skills to manage the program effectively and efficiently.

4.2.3. BAI01.03 - Manage Stakeholders Engagement

Managing stakeholders engagement is essential to ensure that an active exchange of accurate, consistently and timely information reach all stakeholders. This management practice consists in consulting all stakeholders to obtain their agreement on the costs and benefits for which they will accept responsibility. A stakeholder engagement plan (SEP) is an output that will be used later in execution and exploration phase of the approved investment program.

4.2.4. BAI01.04 - Develop and maintain the Program Plan

Define and document all projects, including those needed to bring changes to the business. BAI01.04 management practice prepare the initial groundwork and position it for successful execution by formalizing the scope of the work to accomplish and identify the deliveries that will satisfy its goals and value. Specify resources and skills to execute the projects, including project managers, project team members and other business resources. Specify funding, costs, schedule and interdependencies between multiple projects. Assign accountability clearly for each project, including achieving the benefits, controlling the costs, managing the risks and coordination of project activities. As inputs to develop and maintain the program plan activities, we identify *APO07 – Manage Human Resources*, with information about skills and competencies available, and an inventory of business and IT human resources. From the *APO05.03-Evaluate and Select Program to Fund*, the SPROI information will contribute to the Program Plan. The process *BAI07 – Manage Change and Acceptance and Transitioning* provide information with approved acceptance and release for production, in order to initiate and maintain the program plan.

To reflect the status of the program across all the investment lifecycle, the Business Case Program, has to be updated and maintained throughout the full economic life cycle of IT enabled investments.

4.2.5. BAI01.06 - Monitor Control and Report on the Program Outcomes

In the final phase of the investment lifecycle, Evaluate phase, the main activities are related to monitor and control the program (solution delivery) and enterprise performance (value/outcomes) against the plan. As inputs to realize the activities we identify, Investment Return Expectations (IRE); Investment Portfolio Performance Reports (IPPR) and Corrective actions (CA), all this inputs come from COBIT 5 Process *APO05 – Manage Portfolio*. From APO05.03, detailed Business Case Assessments (BCA) with evaluation of enterprise benefits, risk and availability of resources information, are used to monitor, control and report performance against initial planning.

A final input to consider is the communication of the benefits that result from process *BAI05 – Manage Organizational Change Enablement*. The review results, from this monitor and control activities should be viewed as lessons learned for further professionalizing the investment and portfolio management.

5. CONCLUSIONS AND FUTURE RESEARCH

The focus of this research work was on how an IT value management tool like a Business Case can be integrated and used continuously across all lifecycle phases of an IT enabled investment. Building on previous research and in the literature review, we proposed a Business Case process model grounded on COBIT 5 Framework instead of use or assume that a Business Case is just a static document produced in an initial phase to obtain funds. With this approach, we provide to organizations a more practical insight, on how to develop or review a Business Case Process supported on industry best practices.

The resulted model is especially useful to organizations that are in a phase of adoption of EGIT framework COBIT 5. Based on this study, we understand which management practices and processes from COBIT 5 are required to support the main objectives of the business case process, i.e. help organizations in IT enabled investments decision-making processes and simultaneously, increase the chance of investment success. Of course, this research has some limitations. The focus given only to the process mechanisms of COBIT 5, does not invalidate the need to study and identify the contribution, to Business Case Process, of other enablers defined in COBIT 5 Framework, like: Organizational Structures; Culture, Ethics and Behaviour; resources like Information and People, Skills and Competencies and Principles Policies and Frameworks. How these set of COBIT 5 enablers will support the definition and implementation of a more robust Business Case process model is an interesting research for future. We also intend to submit the current model to a panel of experts, through a Delphi Study, to validate and potentially identify other practices from COBIT 5, or eventually from other industry frameworks, that help to build and maintain a Business Case process. Identifying which practices are more appropriate and the ease of implementation in different organizational contexts, like, public or private, profit or non-profit institutions is also interesting to explore in a future work research.

6. ACKNOWLEDGMENTS

REFERENCES

Achtenhagen, L., Melin, L., & Naldi, L. (2013). Dynamics of business models - strategizing, critical capabilities and activities for sustained value creation. Long Range Planning, 46(6), 427–442. http://doi.org/10.1016/j.lrp.2013.04.002

Agarwal, N., & Brem, A. (2015). Strategic business transformation through technology convergence: implications from General Electric's industrial internet initiative. International Journal of Technology Management, 67(2), 196–214. http://doi.org/10.1504/IJTM.2015.068224

Arora, B., & Rahman, Z. (2016). Information technology investment strategies: a review and synthesis of the literature. Technology Analysis & Strategic Management, 28(9), 1073–1094. http://doi.org/10.1080/09537325.2016.1181742

Ashurst, C., Doherty, N. F., & Peppard, J. (2008). Improving the impact of IT development projects: the benefits realization capability model. European Journal of Information Systems, 17(4), 352–370. http://doi.org/10.1057/ejis.2008.33

Berghout, E., Nijland, M., & Powell, P. (2011). Management of lifecycle costs and benefits: Lessons from information systems practice. Computers in Industry, 62(7), 755–764. http://doi.org/10.1016/j.compind.2011.05.005

By, T. R. (2005). Organisational change management: A critical review. Journal of Change Management, 5(4), 369–380. http://doi.org/10.1080/14697010500359250

Ceric, A. (2015). Bringing together evaluation and management of ICT value: a systems theory approach. The Electronic Journal of Information Systems Evaluation, 18(1), 19–35.

Cha, K. J., Gregor, S., & Fernandez, W. (2008). Towards a deeper understanding of IT-enabled transformation. 19th Australasian Conference on Information Systems (ACIS), 207–217.

Chang, Y., & Ye, Z. (2011). Study of three phases process model of it value realization. In 2011 IEEE 18th International Conference on Industrial Engineering and Engineering Management (pp. 563–567). IEEE. http://doi.org/10.1109/ICIEEM.2011.6035221

Davern, M. J., & Kauffman, R. J. (2000). Discovering Potential and Realizing Value from Information Technology Investments. Journal of Management Information Systems, 16(4), 121–143. http://doi.org/10.1080/07421222.2000.11518268

De Haes, S., & Van Grembergen, W. (2015). Enterprise Governance of Information Technology. Cham: Springer International Publishing. http://doi.org/10.1007/978-3-319-14547-1

Devos, J., & Ginste, K. Van De. (2015). Towards a Theoretical Foundation of IT Governance – The COBIT 5 case. The Electronic Journal Information Systems Evaluation, 18(2), 95–103.

El, S., Youssfi, K., & Boutahar, J. (2016). CAT5 : A Tool for Measuring the Maturity Level of Information Technology Governance Using COBIT 5 Framework. International Journal of Advanced Computer Science and Applications, 7(2), 385–391. http://doi.org/10.14569/IJACSA.2016.070253

Franken, A., Edwards, C., & Lambert, R. (2009). Executing Strategic Change: Understanding the Critical Management Elements that Lead to Success. California Management Review, 51(3), 49–73. http://doi.org/10.2307/41166493

Frisk, J. E., Lindgren, R., & Mathiassen, L. (2014). Design matters for decision makers: Discovering IT investment alternatives. European Journal of Information Systems, 23(4), 442–461. http://doi.org/10.1057/ejis.2013.13

GAO. (2004). Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity. United States General Accounting Office.

Gomes, J., & Romão, M. (2015). Enhancing Organisational Maturity with Benefits Management. International Journal of Information Technology Project Management, 6(4), 34–47. http://doi.org/10.4018/IJITPM.2015100103

ISACA. (2010). The Business Case Guide: Using Val IT 2.0. ITPro.

ISACA. (2012a). COBIT: A Business Framework for the Governance and Management of Enterprise IT.

ISACA. (2012b). Enabling Processes.

ISACA. (2016). COBIT 5 for Business Benefits Realization.

ITGI. (2008). Enterprise Value: Governance of IT Investments, The Val IT Framework 2.0.

Kelly, S. C. (2014). Failings in management and governance: Report of the Independent Review Into The Events Leading to the Co-operative Bank's Capital Shortfall.

Keyes-Pearce, S. V. (2005). IT Value Management in Leading Firms: The Fit Between Theory and Practice. University of Sydney.

Laursen, M., & Svejvig, P. (2016). Taking stock of project value creation: A structured literature review with future directions for research and practice. International Journal of Project Management, 34(4), 736–747. http://doi.org/10.1016/j.ijproman.2015.06.007

Maes, K., De Haes, S., & Van Grembergen, W. (2011). How IT enabled investments bring value to the business: A literature review. In Proceedings of the Annual Hawaii International Conference on System Sciences (pp. 1–10). http://doi.org/10.1109/HICSS.2011.227

Maes, K., De Haes, S., & Van Grembergen, W. (2012). IT Value Management as a Vehicle to Unleash the Business Value from IT Enabled Investments: A Literature Study. International Journal of IT/Business Alignment and Governance, 3(1), 47–62. http://doi.org/10.4018/jitbag.2012010103

Maes, K., De Haes, S., & Van Grembergen, W. (2014). An Expert View on How a Business Case Process Can Be Executed: A Delphi Study. In Proceedings of the European Conference on Information Management & Evaluation (pp. 136–146).

Maes, K., De Haes, S., & Van Grembergen, W. (2015). A Literature Review on IT Value Management: Assisting Organisations to Realise Benefits from IT-Enabled Investments. Strategic E-Commerce Systems and Tools for Competing in the Digital Marketplace, (1996), 26–55. http://doi.org/10.4018/978-1-4666-8133-0.ch002

Maes, K., Van Grembergen, W., & De Haes, S. (2014). Identifying Multiple Dimensions of a Business Case : A Systematic Literature Review. The Electronic Journal Information Systems Evaluation, 17(1), 47–59.

Morrison-Saunders, A., Bond, A., Pope, J., & Retief, F. (2015). Demonstrating the benefits of impact assessment for proponents. Impact Assessment and Project Appraisal, 33(2), 108–115. http://doi.org/10.1080/14615517.2014.981049

Nielsen, P. A., & Persson, J. S. (2017). Useful business cases: value creation in IS projects. European Journal of Information Systems, 26(1), 66–83. http://doi.org/10.1057/s41303-016-0026-x

Peppard, J. (2010). Unlocking the Performance of the Chief Information Officer (CIO). California Management Review, 52(4), 73–99.

Pereira, C., & Ferreira, C. (2015). Identificação de Práticas e Recursos de Gestão do Valor das TI no COBIT 5. RISTI - Revista Ibérica de Sistemas E Tecnologias de Informação, 2015(15), 17–33. http://doi.org/10.17013/risti.15.17-33

Petter, S., Delone, W., & Mclean, E. R. (2012). The Past, Present, and Future of " IS Success ." Journal of the Association for Informaiton Systems, 13(May 2012), 341–362.

Saebi, T., Lien, L., & Foss, N. J. (2016). What Drives Business Model Adaptation? The Impact of Opportunities, Threats and Strategic Orientation. Long Range Planning, (July). http://doi.org/10.1016/j.lrp.2016.06.006

Schryen, G. (2013). Revisiting IS business value research: what we already know, what we still need to know, and how we can get there. European Journal of Information Systems, 22(2), 139–169. http://doi.org/10.1057/ejis.2012.45

Silvius, A. J. G. (2008). The Business Value of IT: A Conceptual Model for Selecting Valuation Methods. Communications of the IIMA, 8(3), 57–66.

Simmons, P. (1998). Gaining Business Value from IT Investments. In Advance in Computers (pp. 109–157). http://doi.org/10.1016/S0065-2458(08)60204-1

Smith, H. A., & McKeen, J. D. (2003). Developments in Practive VII: Developing and Delivering the IT Value. Communication of the Association for Information Systems, 11, 438–450.

Song, X., & Letch, N. (2012). Research on IT / IS Evaluation : A 25 Year Review. The Electronic Journal of Information Systems Evaluation, 15(3), 276–287.

Swanton, B., & Draper, L. (2010). How Do You Expect to Get Value From ERP If You Don't Measure It? AMR Research.

Swinkels, G. J. P. (1997). Managing the life cycle of Information and Communication Technology investments for added value. PrimaVera Working Paper, 97(10).

Thorp, J. (2003). The Information Paradox, Realizing the Business Benefits of Information Technology. http://doi.org/10.1080/15228053.1999.10855943

Uhl, A., & Gollenia, L. A. (2012). Business Transformation Management Methodology. Gower Publishing Limited.

vom Brocke, J., Schmiedel, T., Simons, A., Schmid, A. M., Petry, M., & Baeck, C. (2016). From local IT needs to global process transformation: Hilti's customer service program. Business Process Management Journal, 22(3), 594–613. http://doi.org/10.1108/BPMJ-02-2015-0016

vom Brocke, J., Simons, A., Niehaves, B., Riemer, K., Plattfaut, R., & Cleven, A. (2009). Reconstructing the Giant: On the Importance of Rigour in Documenting the Literature Search

Process. In 17th European Conference on Information Systems (pp. 2206–2217). Retrieved from http://aisel.aisnet.org/ecis2009/161

Walter, S. G., & Spitta, T. (2004). Approaches to the Ex-ante Evaluation of Investments into Information Systems. Wirtschaftsinformatik, 46(3), 171–180. http://doi.org/10.1007/BF03250934

Ward, J., & Daniel, E. (2008). Increasing Your Odds: Creating Better Business Cases. CUTTER BENCHMARK REVIEW, 8(2).

Ward, J., & Daniel, E. (2012). Benefits Management: How to Increase the Business Value of Your IT Projects (2nd ed.). John Wiley & Sons, Inc.

Ward, J., & Daniel, E. (2013). How to deliver more business benefits from IT investments. The European Financial Review.

Ward, J., Daniel, E., & Peppard, J. (2008). Building better business cases for IT investments. MIS Quarterly Executive, 7(1), 1–15.

Webster, J., & Watson, R. T. (2002). Analyzing The Past To Preapre For The Future: Writing a Literature Review. MIS Quarterly, 26(2), xiii–xxiii.

Weill, P., & Ross, W. J. (2009). IT Savvy: What Top Executives Must Know to Go from Pain to Gain. Harvard Business Press.

Wilkin, C., Campbell, J., Moore, S., & Van Grembergen, W. (2013). Co-Creating Value from IT in a Contracted Public Sector Service Environment: Perspectives on COBIT and Val IT. Journal of Information Systems, 27(1), 283–306. http://doi.org/10.2308/isys-50355

Yassaee, M., & Mettler, T. (2015). The Current State of and Possible Future Avenues for IT Value Research : A Review of the past 10 Years. In ECIS 2015 Completed Research Papers. Retrieved from http://aisel.aisnet.org/ecis2015_cr/209