

PROJECT CONTRACTING

KEYWORDS

Benefits realization management • Information technology • Project management • Program management • Portfolio management

• ABSTRACT •

A number of frameworks have been proposed to help organizations manage their IT projects and get the willing benefits, such as Project Management Book of Knowledge, Managing successful programmes, Program management and Managing Benefits from APMG certificate. Even though most of them are prescriptive, evidence has shown that organizations front strong difficulties to adopt them. Hence, this paper present the benefit realization methodology implemented by a public organization to appropriately manage IT/IS project benefits. Based on two case studies from the same organization, we described how the organization have identified desired benefits, defined project outcomes, planned benefit realization, realized benefits and assessed the benefit accomplishment. We have also described which stakeholders should participate in the benefits realization methodology and described their main responsibilities: portfolio management level, program and project level, project sponsor, lead users and change management officers.

The
**HOT
POTATO
GAME**
roles and responsibilities for
realizing IT project benefits

ALEJANDRO ROMERO

• École de Sciences de la Gestion ESG
• Université du Québec à Montréal UQAM
• Chaire de gestion de projets ESG UQAM
• romero-torres.alejandro@uqam.ca

MAGALIE PARÉ

• École de Sciences de la Gestion, UQAM
• École de Sciences de la Gestion ESG
• Université du Québec à Montréal UQAM

NASSIM KHEMICI

• École de Sciences de la Gestion, UQAM
• École de Sciences de la Gestion ESG
• Université du Québec à Montréal UQAM

1. INTRODUCTION

Information system and information technology IS/IT have become an integral and critical part of actual organizations, as they are using to overcome many pressing business challenges. However, ineffective management of IS/IT projects have led to the waste of precious resources such as time, money and efforts (Peppard and Ward, 2007; Fortune et al., 2015). Reports of IT failures over the past 30 years are very high. According to Doherty and co-authors (2012), by the late 1980s, 70% of IT projects were classified as failures. Following this trend, British Computer Society showed that just about 16% of IT projects could be considered as a real success (Al-Ahmad, 2009). Levinson (2009), in a recent study of IT executives, found that 24% of the projects were considered total failures and a further 44% were considered as challenging because they didn't finish on time and within budget or missed some of the intended features in the IT deliverable. Hence, it is not surprising that in many organizations, IT investments are viewed as a failure because these investments have been unable to provide good return for organizations (Thorp, 2003; Peppard, 2010).

The above situation triggers a paradox that shows that even though organizations are aware of the importance of IT and they are willing to appropriate manage IT projects, they have not been able to translate these efforts into real benefits (Dos Santos & Sussman, 2000). A number of frameworks have been proposed to help organizations manage their IT projects and get the willing benefits, such as Project Management Book of Knowledge (PMI, 2013), Managing successful programmes (OGC, 2011), Program management (PMI, 2013) and Managing Benefits from APMG certificate (Jenner, 2014). These frameworks introduce processes and tools to appropriate manage and realize benefits. They use different organizational activities such as strategic planning and management control or operational control to define and categorize benefit types, or consider benefits as either tangible or intangible (Nogesters and Walker, 2005), identify actions to accomplish benefits and assess them throughout the project life cycle and while IT operations.

Even though most of the Benefits Management frameworks are prescriptive, evidence has shown that organizations front strong difficulties to adopt them. The motivation for this paper is to develop in-

sights that can help organizations to improve benefits realization from their IT projects. In doing so, this project is aiming not only to evaluate the benefits gained by different organizations; but also the activities and roles that are required to deliver those benefits. This paper is structured in xx sections. The following section presents the state of art of benefits management for IT projects. The third and four one describes the methodological strategy and the results respectively. The last section lists the conclusions and research avenues.

2. BENEFITS MANAGEMENT FOR IT PROJECTS

Several definitions for project benefits exist. Bradley (2016) defines benefit as an outcome of change that is perceived as a positive by a stakeholder. Another definition is by Managing Successful Programmes (MSP) which gives more detailed for a benefit as (OGC, 2007): "the quantifiable and measurable improvement resulting from an outcome which is perceived as positive by a stakeholder and which will normally have a tangible value, expressed in monetary or resource items. Benefits are expected when a change is conceived. Benefits are realized as a result of activities undertaken to effect the change". The stakeholder aspect is important as benefits always induce positive change for a specific stakeholder or stakeholder group. Second, above definitions underline the tangible side of benefits, which is interesting as today many of the benefits are intangible. There are three categories of business benefits: "tangibles" and "intangibles". Tangible or hard benefits can be justified with financial methods and these include cost savings, cost avoidance, and improved operational performance (for instance, reduction of lead time by 30% or doubled market share). Intangible or soft benefits are outcomes that are impossible to measure (Nogeste and Walker, 2008) (for instance, reduced strategic risk, better decision-making or premium brand positioning).

"Benefit realization" or "benefit management", also known as "value management", is an ap-

proach that is used to identify prioritize and optimize business benefits arising from IS/IT projects that cannot be done effectively through business operations. In order to pursue such an approach, Peppard and Ward (2005, 2007, 2008) states that organizations' attitudes towards IS/IT need to be changed so that efforts are focused on business, rather than necessarily financial benefits. Benefit realization is also defined as "the process of organizing and managing such that potential benefits arising from the use of IT are actually realized" (Peppard and Ward, 2004, p. 168). Benefit realization models basically encourage organizations to keep a track of processes involved in successful IS/IT management and increase their ability to identify not only its monetary returns but also the business benefits.

The issues of obtaining business benefits from IS/IT and justifying investments have been widely discussed by many popular marker research reports () and research articles (). This evidence may have escalated the paradox of IT evaluation among organizations. Anthes and Hoffman (2003) stated that investments in IS/IT are increasing with little return on investment and more project failures.

In order to simplify the task of assessing, identifying and managing business benefits, Shang and Seddon (2002) and Work (2002) suggested benefit frameworks to identify benefit delivered and to improve the likelihood of benefit deliver. Others (Thorp, 2003; Peppard and Ward, 2004) suggested more formalized approaches to track, harness, assess and maximize business benefits through benefit realization models and to better analyze the effect of direct, indirect and long-term benefits on business value. The following sections describe and discuss such benefit realization models in detail.

--- Benefit realization models ---

The ability to realize benefits from an investment depends on the organization's experience coupled with its knowledge of benefits and its awareness of associated potential risks of a particular IS/IT project (Thorp, 2003 and Peppard et al., 2008). Therefore, effective IS/IT management requires a series of activities to handle all the issues carefully

and to management perceived business benefit delivery effectively. A benefit management or benefit realization model is a contribution to this effective IS/IT management that encompasses a series of activities and techniques based on the concepts of total quality management (Peppard et al., 2008). Benefits realization models provide a more descriptive approach for effectively handling and obtaining perceived business benefits.

Business benefits from IS/IT applications can vary from application to the application and from organization to organization, depending on management culture, experience, technological expertise and even the size of the organization. Therefore, to improve and maximize expected benefits, organizations should be aware of what to expect, and how and when to harness than benefits from their projects (Lin et al., 2007; Bannerman, 2008; Coombs, 2015). This suggests a targeted rather than generic approach. Moreover in most cases benefits are not restricted to one particular department or group. They can be distributed throughout the value chain and in different functional units in the organization (Ashurst et al., 2008). Therefore, organization is responsible for identifying and measuring relevant benefits in order to justify their investments in IS/IT project. This can be performed using a benefit realization model.

Several IT and project researchers have developed different models encompassing important aspects for facilitating benefit realization. These are:

- **Cranfield process model of benefit management** (Ward and Peppard, 2002): the IS research centre at the Cranfield School of Management worked with expert from major US-based organization to develop the Cranfield process model of benefits management. This model can be used, as a basis for the best practice with will enable organization to analyze successes and failures in IS/IT projects and to determine the causes for failures and for non-delivery of expected benefits. The model emphasizes identifying the benefits of projects, allocating responsibilities for managing the benefits and the tools and techniques used in managing the project. This model has five stages: (i) identi-

fication and structuring of benefits (ii) planning benefit realization, (iii) executing the benefits plan, (iv) reviewing and evaluating results and (v) potential for further benefits. This model begins with aligning business objectives with IT objectives by analyzing the business objectives and the business benefits that IT could bring. The stages are then all performed iteratively, by constantly checking whether the expected benefits are delivered or not. This should help the organization to determine any changes required to obtain perceived benefits. Furthermore, this model encourages collaboration between IT and business management especially in the first two stages. For instance, in stage IV, users' and other stakeholders' perspectives are taken into consideration, which can enable the organization to evaluate the performance of the project and also to continue with further change management processes.

- **Active benefit realization (ABR)** approach (Remenyi and Sherwood-Smith, 1997): this model looks for increasing business benefit delivery from IS/IT investments, as well as reducing time to market of appropriate information systems to support the business. The ABR model encourages active participation of stakeholders of the IS/IT projects in the evaluation processes by identifying business benefits and making the stakeholders realize the business benefits. This mode is easy to use, and less time consuming as far as managing and reviewing processes are concerned. The benefits realization technique can complement robust project management and financial management techniques, which are critical in order to encourage the top executives to invest in IS/IT projects and to obtain optimal results from the same. The ABR programme includes seven major activities: (i) initialization of project, (ii) production of pictures, (iii) agreement to proceed where justification is crucial, (iv) system development, (v) evidence collection, (vi) review and learning and, (vii) update of the pictures. The above activities should increase stakeholders' awareness of the project deliverables. If there are any discrepancies about the deliverables, this activity may iterate with the third one in order to confirm the agreement to proceed. Therefore, these activities are carried out throughout the lifecycle of the IS/IT project to check the ben-

efits delivered versus business objectives and strategic requirements. This model is designed to enable organizations to record all activities from the beginning of the project implementation and to make informed decisions about the implement of the project, based on a complete understanding of what the system can deliver and what is required for the corporate strategy. Furthermore, this model enables organizations to continually assess the performance of the project and delivery of promised benefits, so that in the worst case the project can be terminated to avoid any further damage.

- **A conceptual model for evaluation of IT projects** (Gunasekaran et al., 2001): claiming that the existing models developed for the evaluation of IS/IT projects were ineffective, because they lacked strategic integration, failed to consider intangible benefits and also lacked non-finance performance measures, Gunasekaran and collaborators (2001) proposes a model to address such perceived limitations. The model comprises five dimensions of evaluation; utilizing strategic, tactical, operational, financial and intangible investment appraisal techniques. The most valuable characteristic of this model is that it comprises specific benefit measures enabling the organizations to confirm or refute benefit delivery.

- **Project Appraisal Model (PAM)** (Srafeimidis and Smithson, 2003): this model is a set of tools and technique used for benefit realization of IS/IT investments. It considers three dimensions of evaluation: (i) financial costs benefits analysis, (ii) risk assessment and risk management and (iii) strategic and intangible benefit appraisal. This model improves benefit delivery while risks are clearly identified and management. Furthermore, the method attempts to highlight the intangible benefits, which is one of the main issuers of contention in benefit realization.

- **DMR** (Thorp, 2003): This model is a product of the DMR Consulting group. It was designed to address the issues of IS/IT benefit realization and benefit management. Thorp (2003) emphasizes that benefits from IT projects cannot be obtained unless organization put in the necessary effort to retrieve expected business benefits and ensure that they are getting value from their investments. Therefore, business processes should have to undergo a series of

iterative changes and actions. Four principles govern this model. Firstly, Thorp (2003) suggests that there is a need to link IS/IT projects and to understand how each one is related to the business objectives and can deliver business results. Therefore, the IT projects from an organization are grouped under a single set call "business program". This requires stakeholders' participation and focus on business results. Secondly, while grouping various projects, series of change and processes may occur such as training and business process redesign. These changes should be managed proactively rather than considering them as "implementation problems". Then, this model focuses on grouping and managing individual project in a single portfolio to ensure that all IS/IT projects contribute to strategic goals. Finally, a full-cycle governance approach is required to manage each project, program and portfolio with an aim of obtaining business results from each one of them. This approach also requires benefit accountability and appropriate measurement systems to ensure benefit delivery. This model comprises four main elements (outcomes, initiatives, contributions and assumptions) that focus on the various aspects of benefit realization. In addition, in order to analyze the contribution of the project outcomes to the business strategy, measuring factors need to be identified. The more comprises business benefit ownership with relevant, accurate and consistent measures to record the performance of the whole business program and the projects with it. This results in a chain that provides a blueprint of the business program facilitating organizations to track business processes and identify missing benefits links with appropriate measurement.

Benefit realization models, including techniques and approaches, can be considered to constitute a collection of management tools that incorporates best practices generally observed under various IS/IT management approaches, such as portfolio management, program management, project management, change management, risk management and financial management (Bradley, 2016). They also encompass some forms of benefit frameworks to identify benefits in a particular area and an approach to manage these benefits (Nogeste and Walker, 2008). The process defined in the benefits realization frameworks may not be definitive and organizations need not to limit themselves of their application. Indeed, such frameworks can be beneficial to be used as approaches to guide the organization how deal with benefits. These frameworks can also be indicative, enabling organization to develop more appropriate and relevant benefits management procedures with anticipated benefit delivery activities and necessary actions to be taken when expected benefits are not delivered as per schedule (Ashurst and Hodges, 2010).

One aspect that is common to all the models is the ongoing need to take stakeholders' perceptions into consideration. Done effectively, this can lead to increase communication among different functional levels in the organization (Ashurst et al., 2008). People involved in the project can be made more aware of the changes and the intended deliverable of each project. Continuous reviews also enable managers to analyze and assess the benefits of the project through predetermined and greed benefit measurement indicators (Bryde et al., 2013). This will also help management to analyze whether the system is useful or not. Furthermore, stakeholders' suggestions are also useful for the development of the projects and to identify further benefits or future business innovation (Ashurst et al., 2008).

Even if these models share same fundamental concepts, there are some major differences. For instance, the most important characteristics of DMR's benefits realization model is the events chain that enables organization to depict a complete flow of benefit-focused tasks. However, it can make the benefits management more complicated since it does not provide an overview of the required tasks (Stading and Lin, 2007). On the other hand, the Cranfield model compasses a comprehensive overview of the benefits realization phase. Love and collaborators (2014) proposes to adopt a hybrid approach combining the two models. The Cranfield model can be used as a basis for all the benefits realization initiative and incorporating important aspects from other models can further enhance it.

--- Limits of actual benefit realization models ---

A small number of studies have defined several factors that influence the adoption of benefit realization model in organizations and most of the factors relate to organizations' perceptions toward using any particular model. Thorp (2003) and Lin and Pervan (2003) have highlighted several problems that have contributed to this understanding of benefits realization: management attitude toward IS/IT that considers IT as a technical issue, difficulty in identifying and failure to track business benefits of IS/IT projects, failure to understand benefits in terms of the business objectives of organizations, inability to measure predictable/unpredictable benefit delivery, lack of benefit measurements and business ownership, organizations' resistance to change and unclear roles and responsibilities for benefits realizations processes.

Marnewick (2016) showed that most organizations respect and adopt benefit management approaches, but they are not able to measure benefits and project success. Following the same vision, Sapountzis (2013) have shown that few organizations succeed in correctly executing each process of Benefits Management frameworks. He stated that benefit evaluation is almost never carried out (Sapountzis, 2013). Some research works have proposed some solutions to improve benefits management. They focus on measuring benefits during the implementation and operation phase of IT projects. For instance, Marnewick (2016) concluded that benefit realization must be monitored during the life cycle of the project and, especially when the IT solution has been delivered. This extended life cycle should improve adherence to benefit realization. Badewi (2015) stated that evaluating post-project benefits enables project profitability, lessons learned from investment and supports identification of new benefits or projects. However, evidence showed that benefits are not evaluating. For instance, 80% of government projects in England do not carry out any evaluation of the benefits after the delivery of the products and services of the project (Viklund and Tjernstrom). Even if benefits post-implementation is executing, most of the time organizations fail in getting an appropriate picture of their benefits (Marnewick, 2016).

The above models provide a broad indication of how benefits realization can be implemented. However, a few recent studies affirmed that organizations are not totally convinced with the efficiency and effectiveness of existing models and they consider the models as complex (Hellang, et al., 2013). In addition, organization express mixed perspective about benefits realization models in general. Some organization believed that their efforts to adjust a model were a waste of time and resources, while a few others considered it was against their organizational culture (Ashurst and Hodges, 2010). Even if benefits realization model consider as a critical success factor the participation of stakeholders into the cycle of benefits realization, none of them define which role should be considered and which stakeholders should participate in which activities.

3. METHODOLOGY

Benefit realization models seem not to provide a complete solution for IS/IT benefit realization since they are limited to guide organizations in the implementation of benefits realization activities. Therefore, organization should adjust these models to fit with their context and resources. To gain more understanding of activities and roles that are required to deliver IT/IS benefits, a case study design was selected as an appropriate method for this research. Case study research is particularly appropriate for the study of IS within organisations where theory and understanding are not well developed (Pefers et al., 2007). A multiple case study design with two units of analysis was used for exploring which practices and roles are used for appropriate managing benefits. Case studies allow in-depth research using multiple sources of data such as interviews, document content analysis and

observations. Furthermore, several researchers consider that a case study enables to analyze contemporary and complex phenomenon within a real-life context (Flyvbjerg, 2006; Yin, 2013). Multiple case sampling provides confidence to findings and improves the robustness of emerging theory by allowing comparison between cases (Yin, 2013; Stake, 2013).

A case study was conducted in a public organization in North America that invests actively in IT projects. The process of Benefit Management for two individual projects (A and B) was explored, in detail. Project A is a complex project considering the implementation of a new information technology that should change organizational practices and improve customer service. Tangible and intangible benefits are related to this project. Sponsor unit of the project A are totally engaged in the accomplishment of identified benefits. Project B is related to the implementation of a new information system for improving human resources management. Tangibles and intangible benefits were identified for project B. Both projects belong to the same organization portfolio but they are not into the same project program. Special attention was given to explore the activities for project A and B that were necessary to realize the benefits from these projects. This focus was valuable not only to understand the organizational context of these projects but also to analyze the variability in the benefits realization.

A qualitative approach using interviews was adopted because it allowed a rich exploration of evaluation processes while remaining open to emergent issues. The primary unit of analysis in this study is the organisation and individual participating into the benefits realization. Four in-depth interviews by project were executed with a total of two portfolio managers, two project managers, two IT/IS project management officers and two IS/IT project sponsors. This selection process was done through intervention of the organization portfolio manager. The authors conducted all interviews. The time taken for each interview ranged from 45 minutes to one hour.

In addition to the interviews, documents relating to project management and the organizational benefit realization protocol were collected for contextual, informational and

triangulation purposes. A total of ten documents were provided to the researcher. The use of multiple types of evidence to triangulate and cross check different views is advocated by Yin (2013). These interrelated sets of data were used to develop interview guidelines and corroborate collected information. In addition, this information provided the ability to identify, in some instances, discrepancies between the practices documented versus those actually in use. Interview transcriptions and other supporting documents were examined for themes and coded (labelled) using open coding techniques borrowed from the grounded theory method (Corbin & Strauss 2008).

4. RESULTS

Preliminary results show that studied organization has invested several resources to adopt a benefit realization methodology for the last four years. It has defined its methodology based on the Managing Benefits Certificate by APMG and implemented in two phases following a top-down approach. It was the portfolio management committee that initiated this organizational change to enhance their monitoring and controlling practices in project management. In the first phase (top left side of the figure 1), they have introduced processes and tools to identify and classify benefits for several types of project, including IT projects. As well, they give some guidance to realize a benefit realization plan. To spread this methodology to the project stakeholders, a member of the portfolio management committee was responsible for realizing and managing benefits. He works with project sponsors, users' IT projects outcome and project managers to first define desired outcomes and benefits and define project objectives. For these first two processes, the methodology introduces two deliverables: the business cases – where benefits are clearly defined – and the project specifications – where organization defines which characteristics should be included in the IT outcome in order to achieve desired benefits. Its benefit realization methodology includes three stage gates (control points) after the end of each process: stage gate 1 after defining desired outcomes and benefits, stage gate 2 after defining project objectives and stage gate 2 after defining benefit realization plans. During each stage gate, portfolio committee verify if benefits, plans and accepted modifications to the plans fit with organizational strategy and objectives. This control point enables to have an appropriate control of benefits realization of each IT project.

In the second phase (top left side of the figure 1), it has defined processes and tools through the project life cycle to monitor and control benefits realization during project realization and project outcome delivery and operation. This second phase includes two fixed stage gates

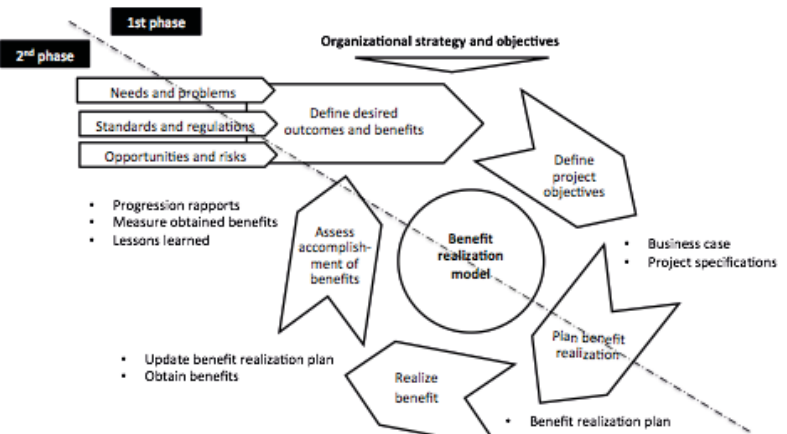


FIGURE 01. Adopted benefit realization methodology in the studied organization.

for controlling benefits: stage gate 4 while project is finished (IT outcomes are delivered) and stage gate 5 while IT outcomes are in operation (the period time depends on the realization of benefits, based on the benefit realization plan). Adopted benefit realization methodology also introduces benefit progression reports that are used for two different phases of the project cycle. For project execution, portfolio management committee receives each four months a progress rapport including information about benefits realizations. Portfolio management committee could know if they have been changes in the project that could affect the realization of the desired benefits. The second series of progress reports are delivered to the portfolio management committee during the IT outcomes operations in order to report the progress of benefit realization when long periods of time are required for obtained them.

Stakeholders participating in the benefit realization process of this organization state different remarks while including the methodology in the project and portfolio management. They all consider that organization appropriately masters the first phase of the benefit realization methodology. Roles and responsibilities for stakeholders executing processes for defining desired outcomes and benefits, defining project objectives and planning benefit realization. Actual results of implementing this methodology fit with stakeholders' perceptions. Benefits are clearly defined by the project sponsor, users' IT outcomes and portfolio management committee. They work all together to categorize them, quantify them, and validate them. Organization also reports a good fit between desired benefits for IT projects and organizational strategy and objectives. Project sponsors are adopting a new culture where they first identify benefits for new IT development and then they work with the IT providers in order to identify the best solution to accomplish business benefits. Sponsors are rejected old practices where they have to justify the proposed project by adding benefits that not fit with users' needs and objective strategy.

However, the studied organization has experienced several difficulties to implementing the second phase of the benefit realization methodology. They consider that the benefit realization plan is not accurate enough to have a good picture of the actual state of benefits (before the IT outcome operation) and the desired states. Some user's administration units don't have the necessary data to measure the initial state of benefit indicators ("AS-IS" data). Then, user administration unit can correctly report the level of benefits obtained from IT project outcomes. Participants to this research have expressed the same concern to adequately define intermediate benefits and when benefits will be obtained (target date). All these

difficulties make monitoring benefit progress complex and progress reports sent to the portfolio committee are not accurate enough to enable a detail picture.

For the second phase of the benefits realization methodology implemented by the studied organization, it seems that role and responsibilities for stakeholders involved in the methodology are not clearly defined. Portfolio managers have firstly been identified as the responsible to help project sponsor define and classify benefits. But they are not able to monitor and control benefits during project execution and IT outcomes in operation. In this second phase, the organization decided to give some benefit realization responsibilities to the program and project managers. However, they don't have the tools to monitor and control benefits while IT products are in operations. Hence, the organization is evaluating to imply the sponsor during the benefit life cycle and give him the role of benefit owners. Nevertheless, sponsors are not totally agreed with acquiring this role since most of the time, they don't have the infrastructure, capacity and knowledge to appropriately manage benefit realization.

--- Roles and responsibilities ---

Even if roles and responsibilities are not totally defining for the adopted benefit realization methodology, studied organization is focused on giving some directions to the stakeholders participating in benefit processes. They have defined three main roles:

- **Portfolio management level:** managers representing the strategic level for project management are responsible for developing and monitoring benefit governance in the organization. They define how benefits should be defined, prioritized, planned, evaluated and controlled. They are responsible to control benefits at the portfolio level. Specifically, they should define and maintain eligibility rules for benefits, carry out the plan to realize benefits at the portfolio level, continuously review benefits based on benefit progress reports), define how benefits will be managed once the product or service is in operation, monitor and evaluate benefits realization at the portfolio level, ensure that benefits are accomplished once the product or service is in operation and define roles and artefacts for benefits management before, during and after the project. However, it was observed that portfolio managers have difficulties to execute these responsibilities principally because they obtain an impartial picture of project benefits, they don't have enough authority over project sponsors and they don't have the appropriate tools to monitoring benefits at the portfolio level.

- **Project or program management level:** they are responsible for delivering IT projects outcomes based on the project specifications and accepted change requests. In the case of benefit realization, their role is limited to monitor and communicate any change that should impact benefits that were defined in the benefit realization plan. However, most of the cases project and program managers don't have enough information to identify how benefits are affected by the actual state of the project. Hence, project and program managers should go hand in hand with the project sponsor and/or users to have a good knowledge of benefit context. Their role could be limited

by an important amount of change requests that could be accepted in order to satisfy stakeholders' requirements that don't fit with the initial strategy that gave birth to the project.

- **Sponsor and/or user level (benefit owner):** they are presented throughout the entire cycle of the benefit life cycle: from their identification and quantification to their realization. They should have an active role in order to appropriately accomplish benefit realization methodology and accomplish the desired benefits. Project sponsor or lead users – user having a good knowledge of the user environment and requirements – are responsible for identifying the desired benefits according to the organizational strategy and objectives, defining desired IT outcomes, identifying indicators to measure changes in financial and non-financial benefits, executing initial measurements (AS-IS) to assess the benefit evolution (TO-BE), monitoring project implementations to identify possible deviations from targets, appropriating project deliverables, evaluating and communicating the realization of benefits once the product or service is in operations and defining new projects based on measured variances. However, project sponsor and lead users are most of the time resistant to execute these responsibilities since they don't have the information, knowledge, tools and infrastructure to correctly execute benefit realization methodology.

Another limit that was observed to correctly realize the benefit realization methodology is that stakeholders involved in the benefit processes don't identify any advantage from executing the above responsibilities. Project and program managers are focused on delivering IT outcomes respecting initial project constraints: time, cost and quality. They are also concerned about satisfying stakeholders but they don't realize that project decisions could affect the realization of project benefits. Sponsors and user leads are also less persuaded on executing the entire cycle of benefits realization. They identified inappropriate benefits in order satisfy portfolio requirements for starting projects. They focus on operating IT outcomes since they want to obtain benefits without measuring them. Some participants to this research argue that benefit realization responsibilities should be allocated to the change management officers since they are responsible for the correct use of IT outcomes. Change management office should be responsible for developing tools to evaluate, control, monitor and communicate benefits realization and for integrating benefits task from benefit stakeholders: portfolio, program, project managers, project sponsors and users.

5. CONCLUSIONS

This paper has presented the benefit realization methodology implemented by a public organization in order to appropriately manage IT/IS project benefits. Based on two case studies from the same organization, we described how the organization have identified desired benefits, defined project outcomes, planned benefit realization, realized benefits and assessed the benefit accomplishment. We have also described which stakeholders should participate in the benefits realization methodology and described their main responsibilities:

portfolio management level, program and project level, project sponsor, lead users and change management officers. Benefit realization is a new approach that should be supported by frameworks, tools, techniques and new roles in the organization. Since benefits should be monitored and controlled before the project (initiating phase), during the project life cycle and after the project (IT product in oper-

ations), organization should define an individual who is responsible to manage them throughout the benefit life cycle. This is similar to the hot potato game where each player should take the potato into his hands and pass it to the next one. However, organizations should include a new role into the project environment that can ensure the integration of the different efforts. ♦

• AUTHORS •



ALEJANDRO ROMERO is a professor at School of Management (ESG) from Université du Québec à Montréal (UQAM) and associate researcher at the research chair on project management and at research chair on management of aeronautical projects. He holds Information Technology Engineering Degree (Universidad Anahuac, Mexico), M. Sc. and Ph.D. in Technology Management (Ecole Polytechnique de Montréal, Canada). In the past 10 years, he has participated as a consultant in several technology implementation projects for different industries (healthcare, government, energy, pharmaceutical, manufacturing, retail, etc.) in Latin America (Mexico, Colombia and Venezuela) and in North America. His research interests are: adoption and diffusion of technology innovation, technology management, organizational transformation and healthcare quality. He has published several articles within technology and project management field.



MAGALI PARÉ is a master student in project management at School of Management (ESG) from Université du Québec à Montréal (UQAM).



NASSIM KHEMICI, is a master student in technology information at School of Management (ESG) from Université du Québec à Montréal (UQAM).

• REFERENCES •

Al-Ahmad, W., Al-Fagih, K., Khanfar, K., Alsamara, K., Abuleil, S., & Abu-Salem, H. (2009). A taxonomy of an IT project failure: root causes. *International Management Review*, 5(1), 93-104.

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.

Ashurst, C., & Hodges, J. (2010). Exploring business transformation: The challenges of developing a benefits realization capability. *Journal of Change Management*, 10(2), 217-237.

Dos Santos, B., & Sussman, L. (2000). Improving the return on IT investment: the productivity paradox. *International journal of information management*, 20(6), 429-440.

Badewi, A. (2015). Project Management, Benefits Management and Program Management. (Doctoral dissertation, University of Salford).

Bannerman, P. L. (2008). Risk and risk management in software projects: A reassessment. *Journal of Systems and Software*, 81(12), 2118-2133.

Bradley, G. (2016). Benefit Realisation Management: A practical guide to achieving benefits through change. CRC Press.

Bryde, D., Broquetas, M., & Volm, J. M. (2013). The project benefits of building information modelling (BIM). *International journal of project management*, 31(7), 971-980.

Coombs, C. R. (2015). When planned IS/IT project benefits are not realized: a study of inhibitors and facilitators to benefits realization. *International Journal of Project Management*, 33(2), 363-379.

Corbin, J., & Strauss, A. (2008). Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory . Thousand Oaks, CA: Sage. *Organizational Research Methods*, 12(3), 614-617.

Doherty, N. F., Ashurst, C., & Peppard, J. (2012). Factors affecting the successful realisation of benefits from systems development projects: findings from three case studies. *Journal of Information Technology*, 27(1), 1-16.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative inquiry*, 12(2), 219-245.

Fortune, J., Peters, G., & Short, L. (2015). Shared understanding during design and delivery: the case of a large-scale information systems program. *International Journal of Project Organisation and Management*, 7(4), 327-338.

Gunasekaran, A., Love, P. E., Rahimi, F., & Miele, R. (2001). A model for investment justification in information technology projects. *International Journal of Information Management*, 21(5), 349-364.

Jenner, S. (2014). Managing benefits, Second edition, The Stationery Office. London.

Hellang, Ø., Skiftenes Flak, L., & Päivärinta, T. (2013). Diverging approaches to benefits realization from public ICT investments: A study of benefits realization methods in Norway. *Transforming Government: People, Process and Policy*, 7(1), 93-108.

Levinson, M. (2009). Recession causes rising IT project failure rates. *CIO Magazine*, 18(June).

Lin, C., Pervan, G., & McDermid, D. (2007). Issues and recommendations in evaluating and managing the benefits of public sector IS/IT outsourcing. *Information Technology & People*, 20(2), 161-183.

Love, P. E., Matthews, J., Simpson, I., Hill, A., & Olatunji, O. A. (2014). A benefits realization management building information modeling framework for asset owners. *Automation in construction*, 37, 1-10.

Marnewick, C. (2016). Benefits of information system projects: The tale of two countries. *International Journal of Project Management*, 34(4), 748-760.

Nogeste, K., & Walker, D. H. (2005). Project outcomes and outputs: making the intangible tangible. *Measuring Business Excellence*, 9(4), 55-68.

Nogeste, K., & Walker, D. H. (2008). Development of a method to improve the definition and alignment of intangible project outcomes and tangible project outputs. *International Journal of Managing Projects in Business*, 1(2), 279-287.

Peffers, K., Tuunanen, T., Rothenberger, M. A., & Chatterjee, S. (2007). A design science research methodology for information systems research. *Journal of management information systems*, 24(3), 45-77.

Peppard, J. (2010). Unlocking the performance of the chief information officer (CIO). *California Management Review*, 52(4), 73-99.

Peppard, J., & Ward, J. (2004). Beyond strategic information systems: towards an IS capability. *The Journal of Strategic Information Systems*, 13(2), 167-194.

Peppard, J., Ward, J., & Daniel, E. (2007). Managing the realization of business benefits from IT investments. *MIS Quarterly Executive*, 6(1), 1-11.

Project Management Institute PMI. (2013). Project Management Body of Knowledge (PMBOK). Project Management Institute.

Office of Government Commerce OGC. (2011). Managing successful programmes. The Stationery Office.

Remenyi, D., Sherwood-Smith, M. And White, T. (1997). Achieving Maximum Value from Information Systems: A Process Approach, John Wiley & Sons, Chichester, England

Sapountzis, S. (2013). An investigation into the development of an effective benefits realisation process for healthcare infrastructure projects (Doctoral dissertation, Kent Business School).

Serafeimidis, V., & Smithson, S. (2003). Information systems evaluation as an organizational institution-experience from a case study. *Information Systems Journal*, 13(3), 251-274.

Stake, R. E. (2013). Multiple case study analysis. Guilford Press.

Standing, C., & Lin, C. (2007). Organizational evaluation of the benefits, constraints, and satisfaction of business-to-business electronic commerce. *International Journal of electronic commerce*, 11(3), 107-134.

Thorp, J. (2003). The information paradox: realizing the business benefits of information technology. McGraw-Hill Ryerson.

Viklund, K., & Tjernström, V. (2008). Benefits Management and its applicability in practice (Master's thesis).

Yin, R. K. (2013). Case study research: Design and methods. Sage publications.