

The Application of Information Technology Portfolio Management in an Academic Sector

Aaron J. Gordon

Abstract: *Portfolio management practices have been integrated into information technology departments as a means to improve project selection and contribute to the achievement of an organization's strategic mandate. In particular, this discussion focuses on current literature aimed at information technology portfolio management (ITPM) in application to an academic sector. A scholarly perspective provides an overview of ITPM followed by a discussion on issues related to integration. This report recommends the importance of providing additional training on financial management and risk planning to those providing ITPM oversight. In addition is the need to recognize the relationship with change management due to the dynamic environment of technology and the importance of utilizing performance metrics. As ITPM continues to evolve and integrate into the academic sector, educational leaders become more equipped to make sound project decisions that support the organization's goals and demonstrate fiscal responsibility.*

Keywords: *Portfolio management, information technology, academic sector, project management.*

I. INTRODUCTION

Best practices in portfolio management have widely been discussed in recent decades. However, continual research on information technology portfolio management (ITPM) has gained more recent attention. The Project Management Body of Knowledge (PMBOK®) defines a portfolio as the collective projects, operations, sub-portfolios, and programs, which are managed as a group in an effort to achieve the overall strategic objectives of an organization (Project Management Institute, 2013). Thus, the portfolio of an IT department, within an academic organization would include the various IT projects, programs and operations that aim to achieve the strategic mandate of the organization. Portfolio management benefits an organization through a systematic review of projects and programs, when prioritizing the allocation of resources, and ensuring the portfolio aligns with the organizational strategy (Project Management Institute, 2013). Effective portfolio management results in effective organizational decision making under changing environments (Kock & Gemunden, 2016). In addition, a portfolio approach offers a more rigid budget reporting process that can be assessed through the strategic goals of the organization

(Calhoun, 2004). This report offers a discourse on existing literature directed toward the integration of portfolio management and information technology and provides a synthesis for an academic environment. The following will examine areas of finance, risk, change, and the importance of performance metrics on an IT portfolio management system.

II. LITERATURE REVIEW

A. An Overview of the IT Portfolio Management System

In Jeffrey and Leliveld's (2004) study, they identified that 89 percent of Chief Information Officers understand the importance of ITPM, of which, 65 percent believed ITPM offered significant value to an organization. However, only 17 percent were capitalizing on the true value of an ITPM process. The model they discuss is known as the IT Portfolio Management Model and segregates an organization's IT portfolio management into four strategic categories; those being, ad hoc, defined, managed, and synchronized (Jeffrey and Leliveld, 2004). At the ad hoc stage, organizations have a lack of clear process in making project decisions and follow-through. It is critical for organizations to realize that decision making is a process, which requires both planning and control (Koch & Gemunden, 2016). As organizations work through both the defined and managed stage, companies integrating a synchronized stage reflect an "...ability to align investment portfolios with business strategy. These organizations use evolving metrics to measure a project's value through its life cycle. They routinely weed out underperforming initiatives. And to increase the aggregate value of their IT investments, they are able to assess both the risks associated with each project...and the portfolio risks" (Jeffrey and Leliveld, 2004, p. 44). In essence, this process is based on a two-fold continuum; projects are consistently being evaluated against the corporate strategy and consistent communication exists across team of executives.

B. Integration Issues within an IT Portfolio Management System

Prior to integrating an IT portfolio management process (ITPM), the portfolio and program manager must ensure they are abiding by a synchronous model (Jeffrey & Leliveld, 2004). First, project decisions must be based on associated values and risks. The authors discuss how a project that is both low risk and high value, should be an obvious priority. Projects that are determined to be of high risk and low value should be terminated. Projects that are low value and low risk are not eliminated, but funding priority becomes low. Lastly, projects with high risk and high value are generally difficult to execute and must be funded selectively.

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* Correspondence Author

Aaron J. Gordon*, Ph.D. Assistant Professor, Department of Business & Economics, Algoma University, Sault Ste. Marie, ON, Canada, E-mail: aaron.gordon@algomau.ca

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The Application of Information Technology Portfolio Management in an Academic Sector

The second characteristic of an integrated ITPM model is a feedback strategy. Projects must be assessed through the use of scorecards to ensure there is alignment to the IT strategy.

Third, is the necessity of tracking project benefits through to completion. Finally, the frequent need to hold review sessions, the use of portfolio software, which monitors the IT department's performance and health can better pave the way toward a ITPM system (Jeffrey & Leliveld, 2004). Once the synchronous process has been developed, only then can the integration of an IT portfolio management process begin.

The five Project Management Process Groups, as discussed by the Project Management Institute (2013) demonstrate the sequential steps for integration. The first process group is coined initiating. At this stage, an academic IT program and/or project is chosen based on the caliber of high value and preference of lower risk; resulting in a clear depiction of the program benefits and financial frameworks. Second, process group leads to the planning stage, which is aimed at delivering the results required. Such areas as developing program infrastructure, goals and objectives, architecture of the academic IT program, schedule, monthly communication frequency with stakeholders, identification of risks associated, procurement plan, financial plan and cost estimate, governance structure, audit frequency, and quality control are areas at this stage for consideration. The third integrative process within ITPM is known as executing. At this stage the academic IT program manager and team are fully invested in the integration process. As such the project leaders, team members, and resources are grouped and trained to execute the program plan, as discussed in the previous stage. Fourth, is the Monitoring and Controlling Process Group. At this integration stage, regular communication with academic stakeholders and executive members are undertaken. Furthermore, is the need to interpret the metrics of the IT projects. The bottom line in determining this is by answering two questions: Does the IT project continue to offer high value? Does the IT project align with the academic strategy and goals? Finally, the closing stage ensures the IT program or project has come to an end and has been accepted as either a service, product, or benefit. Arguably, there could be a sixth step to include the continued monitoring and metric evaluation of the IT service, product, or benefit. In other words, all projects have life cycles and without continually monitoring the project, companies can be at risk of costs associated with redundant IT projects (Jeffery and Leliveld, 2004).

C. Integration of Financial Management and Controls within an IT Portfolio Management System

IT portfolio management has been explored from a financial perspective and worth noting advancements in research. Financial management has been defined as a process for maximizing an organization's money (Durbin & Doerscher, 2010). Historically, correct and detailed financial management of IT initiatives have been a significant challenge to address (Levine, 2006). The concern lies in the fact that most companies have more IT projects that need attention than funds available to support these (McShea, 2006). However, those companies that have combatted this

problem through ITPM have shown realized savings in IT costs from 2 to 5 percent, reaching 50 percent productivity improvements and reallocate 10 to 15 percent of the IT budget into organizational strategic projects (Caruso, 2007). In other words, ITPM proves beneficial in terms of increasing productivity and empowering CIO's with the right information to lessen costs (Kramer, 2006).

However, a lack of financial skills among IT staff tend to cause barriers to the implementation of an ITPM system. In one study, four out of ten executives admitted that a lack of financial knowledge among IT staff was the reason that ITPM was not integrated. Furthermore, eight out of ten believe the lack of knowledge causes problems in aiming to track the IT investments' value (Chabrow, 2003).

Without a clear knowledge of financial metrics, ITPM is sure to fail. In fact, it could be argued that pursuing ITPM, without a working knowledge of finance, leads to a redundant practice. As McShea (2006) stated, "...portfolio management is important for many reasons, but most significantly it provides flexibility in applying financial valuation techniques...and enables alignment of IT investments to be assessed against the overall business strategy" (p. 35).

Thus, in order to maximize the business strategy in an academic environment, through ITPM, it is recommended that academic IT departments be formally trained in financial knowledge. Even before the portfolio system is initiated in an organization, the IT program manager must ensure that proper training and skills have been imparted to IT staff, so that they can better manage the programs and projects. Finally, through a better awareness of financial skills, the IT department can better identify project risks and investigate which projects need to be prioritized versus terminated.

D. Integration of Risk Management within an IT Portfolio Management System

The essence of IT portfolio management is to acquire a balanced approach to risk, while maximizing the value of the IT portfolio outcomes (McShea, 2006). When risk management is integrated into a portfolio approach, projects are more apt to receive the correct resources (Teller & Kock, 2013). The element of risk certainly exists within IT portfolio management system, however, the value of quantifying the risks are pinnacle. One approach that has been studied in quantifying risks in IT is known as the Applied Information Economics (AIE), developed by Douglas Hubbard (McShea, 2006). This method seeks to quantify variables associated to risk in terms of "...project cancellation, low user adoption, or delayed end-user benefits..." (McShea, 2006, p. 32). Two additional applications that manage the IT payback periods and assesses the risks involved are Giga's Total Economic Impact (TEI) and Gartner's Total Value of Opportunity (TVO) (McShea, 2006). The benefit of the TEI system is that risk is adjusted based on costs, benefits, and flexibility; whereas the TVO system adjusts risks based on the business performance and potential (McShea, 2006). Barsh and Capozzi (2008) discuss the necessity of managing risk in accordance to a portfolio management system.

They highlight four separate areas of risk that must be considered; those being, market/competitive risk, talent risk, cultural/political risks, financial risk, and operational risk. Thus, when applied to IT portfolio management in an academic environment,

IT program managers should ask themselves: How can our IT better serve and attract students? What are our academic competitors attracting students through IT innovation? What additional talent or skills do our project teams require to be more successful? How does the academic IT project budgets compare with the realization of project needs? Answering these questions, ITPM can better prepare academic organizations in understanding the risks associated with their programs.

E. Integration of Change Management and Control within an IT Portfolio Management System.

The realization of change within IT is a constant in the minds of CIOs. It was suggested that by 2013, the CIO role would be absorbed into another role or marked as an executive leader of business change (Potts, 2008). However, retaining CIO positions in organizations have continued. Portfolio management is being absorbed into IT functions, whether intentionally or unintentionally. Durbin and Doerscher (2010) explore how change events can be controlled by portfolio management. In other words, ITPM has now become a driver of change within an organization. The application of enterprise architecture has permeated IT to unleash change management from within, through collaboration of team members; however, the glass ceiling of change can potentially be found in whether the corporate culture can facilitate change (Potts, 2008).

F. Monitoring Performance Metrics of an IT Portfolio Management System.

The intentions of metrics are to measure success, yet they have the potential to slow innovation (Cooper, 2013). It is imperative to manage the performance of the portfolio through appropriate tools and techniques, particularly through strategy linking (Levine, 2005). This technique creates an enterprise of projects, based on the mission of the organization. In other words, program managers first identify the organizational mission statement. From there, he or she can better create a series of goals that support the mission statement. Next, various strategies will be used to support each goal. Lastly, each strategy will be fulfilled through the use of a host of projects. However, it must be stated that each project has been chosen based on a project evaluation criteria (Levine, 2005). The author's criteria scores the project on areas such as strategic alignment/impact, compliance, risk, and net present value. However, the question remains; do the instituted projects create value for an academic organization? Project success must be evaluated on whether the results have a positive impact on achieving the organization's strategic mandate (Brown, 2008). Through continual evaluation, projects can be terminated quickly, if performing poorly.

Academic environments would be wise to apply performance tools and techniques to their portfolio management. According to the PMI (2008) there are six performance tools available. First, is the Project/Portfolio Management System. This system is an information highway

between the various components of the academic IT portfolio. This technique ensures there is no replication of projects and redundancies within the portfolio. Second, is the Financial Reporting System. In this system managers use financial data to understand whether components must be realigned, removed, or re-prioritized. Next, is a Performance Measurement Technique. In this technique, program managers in academic environments utilize various performance indicators, such as value earned, to monitor performance improvement. Fourth, is a Graphical Representation. Based on the previous technique's information, progress in programs and projects are now color coded in green, yellow, and red; depicting whether desired performances are being achieved. Fifth, is the Portfolio Management Resource tool. This ensures that each component within the academic portfolio is being treated fairly and in the same manner as every other component, which is evaluated. Finally, is the technique known as Portfolio Management Performance Variance/Alert. In simplest terms, this technique calls management to assemble performance of components into a standardized format (PMI, 2008). In other words, tracking the performance of the academic IT portfolio through the use of a standardized matrix, can better communicate results with decision makers at the executive level.

Metrics function as mean to identify whether a project charter has completed within the expected timeframe and budget (Badewi, 2015). Furthermore, key performance indicators should be readily available to all employees and act as a communication tool for the organization (Durbin & Doerscher, 2010). The utilization of performance metrics must be integrated into the ITPM system of an academic environment. In doing so, projects can more easily be measured for success and can convey to stakeholders the return on investment associated with the costs of IT projects in an academic setting.

III. DISCUSSION, FUTURE RESEARCH AND CONCLUSION

This theoretical discourse on IT portfolio management examined existing literature that has shaped the field of knowledge on ITPM. More specifically, the facets of ITPM were discussed in application to the academic sector; whereby, universities, colleges, and schools should consider adopting ITPM practices. This discussion identified integration issues related to introducing ITPM to new organization, financial management and controls associated with ITPM, approaches to risk management and planning, the importance of change management on the dynamic field of technology, and the need to apply performance metrics to the various projects within ITPM. Three areas of recommendations can be attributed to this study. First is the need to collect primary data from academic institutions that have integrated portfolio management processes into their IT department. Collecting data on measuring fiscal returns, improvements on communications processes, and how ITPM adds value to accomplishing the strategic goals of the academic institution would bode well for gaining clarity on ITPM best practices in academic integration.

The Application of Information Technology Portfolio Management in an Academic Sector

This study examined the importance of stakeholder buy-in toward ITPM processes. However, is the need to further examine if there is a co-relation between the success of ITPM and senior leadership buy-in, within an academic environment. Finally, it is recommended that future research continue.

To explore the expansion of IT portfolio management as program managers see the benefits of restructuring their processes to reflect a portfolio program management approach.

This report provided a discourse on existing portfolio management literature that integrates IT processes relating to the areas of finance, risk, change, and performance metrics. As IT portfolio management continues to evolve and expand into the academic sector, prioritizing the best projects, in light of fiscal restraints can better ensure each project adds value to the strategic goals of the organization.

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AUTHOR'S

Aaron J. Gordon, PhD, is an Assistant Professor in the Department of Business & Economics at Algoma University, in Sault Ste. Marie, Canada. He received his Doctorate of Philosophy in Organization and Management, with a specialization in Project Management in 2013 and holds a Masters of Business Administration (MBA). He is a certified consultant has advised

organizations within the non-profit and private sector to assist them with developing and deploying effective human resource and project management processes, in light of an organization's strategic plan. His research examines the impact fiscal restraints have on human resource planning and project management during organizational change. He is a member of both the Project Management Institute (PMI) and the Human Resource Professional Association (HRPA).