How Higher Education Leaders Identify, Prioritize and Manage their Portfolio of Projects and Initiatives: Instrumental Case Study Observations and Conclusions

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ABSTRACT

This study sought to understand how Higher Education Institutions (HEI) identify, select, balance, authorize and manage their portfolio of projects. The central question guiding this research was: What is the process that HEI leaders use to choose and maintain their slate of projects?

The researcher used an instrumental case study across two HEI sites and conducted semi-structured interviews with HEI leaders to understand the current process and its resulting outcomes. These participants sit at the intersection of identifying projects to meet the needs of their own programs as well as having to complete projects initiated by higher level leaders in their organizations. Results were analyzed through a project portfolio management maturity model and through the application of systems thinking.

Nine themes emerged from the data analysis that include ambiguity in translating goals to projects, segmented decision-making, insufficient data to make portfolio decisions, conflicting priorities between top leaders and interviewees, sense of missed collaboration opportunities, sense of disconnection between one’s immediate leader vs. organizational support, a lack of visibility to the division wide portfolio/overall system capacity, if empowerment was a fact or fiction and overall concern that the portfolio was not optimized.

First, from this analysis, it was determined that the maturity of the PPM employed by participants operates at Level 1 – Ad hoc. Second, it was concluded that the PPM process was limited to the individual HEI leader and that projects, not portfolios, are approved. Third, it was observed that systems thinking archetypes may limit optimization, particularly in the “Success to the Successful” consideration. Fourth, it appeared that the system thinking perspective is limited in the PPM process with the opportunity to consider additional feedback loops. From these
findings, short and long term recommendations for practice were implied as well as additional research to build on this first step in studying the PPM process of HEI organizations.

The study was a response to current state insights in the non-profit industry - fewer than half of non-profits use formalized project planning; lacking are the specific practices and tools to translate the organization’s vision into meeting its mission/ and goals in an effective and efficient manner (Myers & Sacks, 2003). Though well demonstrated in business contexts, formalized project management practices are not integrated in higher education institutions (Alpert & Hartshorne, 2013).

Keywords: Project Portfolio Management, Project Management, Higher Education Institutions, Higher Education Leaders, Systems Thinking, Project Portfolio Management Maturity, Instrumental Case Study
DEDICATION

As always, to Courtney, Jillian and Meredith who are my light and keep me grounded. I love you to the moon and back.
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CHAPTER 1 – INTRODUCTION

The purpose of this instrumental case study was to understand, examine and investigate the process that Higher Education Institution (HEI) leaders employ within their university to choose and maintain their slate of projects. Organizations are constantly faced with the decision around which projects to complete; the list of prospective projects typically exceeds the capacity of what can be completed (Dehouche, 2015). Dehouche (2015) also noted that lack of effective project selection can affect the level of organizational success achieved. The benefits achieved by employing project portfolio management (PPM) allows the organization to reduce redundancy in projects, prioritize projects, enhance communication, manage limited resources, and address complexities and interdependencies (Austin, Browne, Haas, Kenyatta, & Zulueta, 2013).

This research project intended to contribute to non-profits, specifically HEIs, ability to meet strategic goals and deliver services through the successful completion of the correct mix of projects. The purpose of this case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals.

For this research project, a portfolio was defined as “a component collection of programs, projects or operations managed as a group to achieve strategic objectives.” (The Standard for Portfolio Management, 2013, p.3). Project portfolio management has generally been defined as “the coordinated management of one or more portfolios to achieve organizational strategies and objectives.” (The Standard for Portfolio Management, 2013, p. 4). The Standard for Portfolio Management (2013) states that PPM includes the processes for how projects and programs are
evaluated, selected, prioritized and allocated scarce resources to accomplish strategies aligned with its vision, mission and values.

The focus of this research was the project portfolio management process and practices within HEIs. HEI leaders were interviewed to understand their current project selection process and practices, identify potential roadblocks to optimal strategic selection and elements that support their selection process, as benchmarked against maturity practices in PPM. Knowledge generated from this study was expected to inform how HEI leaders can ensure that the organization’s vision and mission is optimally supported with their selected portfolio of projects. It was also to support broader work on how a project portfolio management system can be deployed to support a HEI’s ability to meet its strategic goals by integrating project selection processes and tools while considering the challenges of the higher education institution.

This chapter begins with an explanation of the context and background to the study. The rationale and significance of the study is discussed next, drawing connections to potential beneficiaries of the work. The research problem, purpose statement, and research questions are presented to focus and ground the study. Finally, the theoretical framework that serves as a lens for the study is introduced and explained.

**Context and Background**

**Higher Education Landscape**

Scholars noted that the landscape of higher education as complicated and challenging (Pucciarelli & Kaplan, 2016). Current state challenges within HEIs included both national and global economic, political and social change pressures (Daniel, 2014). Hulme, Groom and Heltzel (2016) noted the economic, demographic and technological challenges faced by the HEI. Pucciarelli and Kaplan (2016) explained that in order for HEIs to achieve their conflicting missions to teach, conduct research and provide public service and to survive, they must create...
revenue, compete in its market, while at the same time provide education and prioritize public good activities. More specifically, Daniel’s (2014) study recognized that universities are being asked to increase diversity proportions, align with workplace graduate factors, and ensure that curriculum are relevant at both national and global levels, meeting these in a timely way while at the same time imposing reduced budgets, growing regulatory demands, increased operating costs, and admission rate declines based in part to increasing tuition.

Through research published in the University Business Web Digest (2016), additional challenges faced by universities include rising costs, limited access to strategic data and evolving student expectations; more specifically, developing new revenue sources, reducing costs, attracting and retaining students, improving graduation rates, adding academic programs and improving technology. This study (2016) explained that all are noted a priority; diversity requires new programs, new academic programs and different delivery modes drive the need for new technology – all while ensuring academic excellence.

Pucciarelli & Kaplan (2016) noted that universities need to compete in a global marketplace, crowded with choices for students, requiring HEIs to not only market themselves but to respond to student’s preferences, which is beginning to impact academic standards and quality. The study (2016) shared that it is the general expectation that universities and colleges provide a dynamic return on investment for the student. Given that the jobs of today are different from the jobs that existing ten years ago, HEIs must respond to the developing needs of society requiring redesigned and new curriculum (Pucciarelli & Kaplan, 2016). Students are expecting a consumer like experience (University Business Web Digest, May 24, 2016).

HEIs are limited to address the changes that would solve these issues, generally reacting through short term solutions rather than looking at strategies for change, creating more projects within a HEI (Hulme, Groom and Heltzel, 2016). Changing business processes was one way
noted to address this; change management challenges and decentralized decision making were noted as the key obstacles to changing these processes since embedded and cultural (University Business Web Digest, May 24, 2016). Daniel (2014) explained that while universities are being asked to increase diversity proportions, align with workplace graduate factors, and ensure that curriculum is relevant at both national and global levels, their stakeholders are expecting these demands to be met in a timely way. Additionally, reduced budgets, growing regulatory demands, increased operating costs, and admission rate declines add to the complexity (Daniel, 2014). These issues created the potential for many simultaneous change projects intended to ensure an organization’s vision and strategy are met and sustained; project management was found to have application in this area of focus (Lappe and Spang, 2013).

**Project and Project Portfolio Management**

With cutbacks in government funding and the decrease in donations from outside entities, non-profits feel the pinch of having to do more with less requiring alternative strategies to be considered to allow these non-profits to deliver services within these constraints so that their missions are met. (Kahnweiler, 2011). Mir and Pinnington (2014) noted that projects, defined as temporary endeavors to deliver a unique product or service, are one means non-profit organizations use to create and deliver services to its stakeholders. Project management consists of tools and processes that enable organizations to optimize project work for the monies spent. (Mir & Pinnington, 2014). By applying effective and efficient project management, the “knowledge, skills, tools and techniques to project activities to meet the project requirement”, the probability of each project being successful is enhanced (The Project Management Institute, 2013, p. 5). Key to meeting the organization’s mission and goals, in addition to delivering successful projects, is to ensure the correct mix of projects are identified, selected and implemented. Within project management, project portfolio management is a set of tools,
techniques and processes to select the correct projects to do (The Project Management Institute, 2013).

Many HEIs do not have sufficient understanding of their project portfolios which can obstruct progress toward the institution realizing its goals (Begićević, Divjak, & Hunjak, 2010). Their study (2010), based on the strategy of the institution, recognized it is key to consider benefits, costs and risks initiated by different kinds of program and projects. This can be achieved through a systematic assessment to select the most suitable projects from the pool that has been identified. (Begićević, Divjak, & Hunjak, 2010).

In their Pulse of the Profession Study (2012), the Project Management Institute (PMI), researched how project portfolio management affects organizational success and recognized that organizations that invest in maturing their project, program and portfolio practices realize a clear and positive return on that investment. The report (2012) highlighted practices that can help improve success rates over ten percentage points; over sixty percent of projects in organizations that described their PPM as highly mature exceeded their established return on investment (Hirsh, 2012). The study analysis (2012) showed that the reported maturity level correlates with on-time and on-budget project delivery; organizations reporting higher maturity levels outperform lower maturity organizations by 28 percentage points for meeting on-time delivery, 24 percentage points for on-budget delivery and 20 percentage points for meeting the business goals of the project. Organizations that reported high alignment of their projects to organizational strategy – a result of effective project portfolio management, averaged 65 percent of their strategic initiatives meeting original goals and business intent, compared with only 35 percent due to low alignment (Project Management Institute, 2014) The Pulse (2014) study concluded noting the lack of alignment of projects to organizational strategy likely contributed to the fact that one half of strategic initiatives (44 percent) reported as unsuccessful.
PMI (2016) stated that projects and programs that are aligned to an organization’s strategy were completed successfully more often than projects that were misaligned (48 percent versus 71 percent) with earlier research reporting that aligning projects with strategic objectives had the greatest potential to add value to an organization. In the Pulse of the Profession (2016), data indicated that organizations with portfolio management in place, realized a project success rate of 72% while those with low/no portfolio management in place had a success realization rate of 45%. The report (2016) data explained that more mature portfolio management practices lead to better project performance with better outcomes than those without processes in place. From another perspective, if the portfolio was not managed efficiently and aligned with the organization’s strategy, poor portfolio decisions resulted in significant negative impacts (Cooper, Edgett, and Kleinschmidt, 2006). Cooper et al. (2006) reported that having an explicit project portfolio management approach does have an impact on portfolio performance outperforming those that do not on six dimensions – projects aligned with business strategy, the portfolio consists of high value projects, the spending is representative of the business strategy, projects are completed quickly since resources are available, the portfolio is well-balanced and consists of the right number of projects. This study (2006) concluded that benefits gained from better project portfolio management included a common basis for leader discussions, better fit of projects to strategy, concentration on the few, worthwhile projects, improved time to market since resources completed the high value projects, improved buy-in to selected projects and improved strategic planning realization.

Studies have shown that the use of project management has allowed for-profit organizations to increase the probability of project success. In a study competed by Mir and Pinnington (2013), project management performance was shown to have a positive influence on project success. Though well demonstrated in business contexts, it has not been as integrated in
non-profits, including higher education (Alpert & Hartshorne, 2012). Wierschem and Johnston (2005) noted that majority of the literature addressing academia’s use of project management has been anecdotal or application based. HEI’s have been slow to adapt business practices (Pucciarelli & Kaplan, 2016).

A great deal has been researched and published about the use of project management in for-profit organizations and how integration of best practices is key to project success (Mir & Pinnington, 2014). Studies within higher education are limited, allowing the assumption that project management is not well applied in academia (Alpert & Hartshorne, 2012). One study indicated that the lack of formal project management within higher education has led to projects failing and lacking direction (Browne, Haas, Kenyatta, & Zulueta, 2013). This requires university management to initiate programs and projects from the bottom up and become champions of change transformation (Pucciarelli & Kaplan, 2016). To remain competitive, higher education needs to adopt formal project portfolio management (Austin, Haas & Zulueta, 2013). Stettina, Offerman, De Mooij, and Sidhu (2018) noted that it is difficult for an organization to acquire mature capabilities in both project and project portfolio management.

Based on the literature research, it appears that little has been studied around the use of project management within non-profit organizations (Wierschem & Johnston, 2005). One study noted that increased project management maturity in higher education could support the demands for greater efficiencies and support HEI in managing workloads and that further research could lead to a value-added project management model for HEI leaders (Alpert & Hartshorne, 2012).

This study examined how project portfolio management is used to support the HEI in defining and selecting projects to optimize meeting its mission and goals. The purpose of this case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio
management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals.

**Significance**

In a study competed by Mir and Pinnington (2013), project management performance was shown to have a positive influence on project success. Though well demonstrated in business contexts, it was not seen as integrated in non-profits, including higher education (Alpert & Hartshorne, 2012).

In a summary of PMI's Pulse of the Profession® research, Burba (2016) shared that high-performing organizations -- delivering 80 percent of projects on time, on budget and meeting goals – applied good practices in project, program and portfolio management. The study also reported that most organizations were not focused on improving their project management capabilities with only 1 in 4 using standardized practices across the entire organization. One reason noted for this was due to a lack of clarity around how project management helped organizations meet their strategic goals (Burba, 2016). The study (2016) concluded noting that less than half of the respondents reported an effective alignment of projects to organizational strategy.

Morris and Laipple (2015) concluded from their study of 1515 university administrator’s leadership skills, preparedness for administrator roles and job satisfaction that there was a need for continued leader development and management training as well as mechanisms to support wellness behaviors. Though deans, directors and department chairs have broad decision-making responsibilities that affect faculty, students and staff, their lack of preparedness affected productivity and morale (Morris & Laipple, 2015). This study (2015) concluded that in order to operate effectively in a complex climate with decreasing budgets, there was a mantra to do more with less, requiring that goals be set, reviewed and modified regularly. Project portfolio
management contains the process and tools to support administrators in meeting this recommendation.

**Research Problem and Research Question**

**Research problem**

Prior research has shown that lack of effective project selection can affect the level of organizational success achieved (Dehouche, 2015). The research problem of this study was to examine how project portfolio management is used by non-profits, specifically HEIs, to deliver strategy through the successful selection of the correct mix of projects. This research explored how HEI leaders identify, select and managing their collection of projects and what are the supporting factors and challenges to that process.

**Purpose Statement**

Therefore, the purpose of this instrumental case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals.

**Research Central Question**

The central question guiding this research was:

What is the process that HEI leaders use to choose and maintain their slate of projects?

**Definition of Key Terminology**

For this study, terms are defined as follows.

Benefit – “An outcome of actions, behaviors, products or services that provide utility to the sponsoring organization as well as to the program’s intended beneficiaries” (The Standard for Program Management, 2013, p. 165)
Portfolio – “Projects, programs, subsidiary portfolios and operations managed as a group to achieve strategic objectives” (Project Management Institute, 2013, p. 714)

Program – “Related projects, subsidiary program, and program activities that are managed in a coordinated manner to obtain benefits not available from managing them individually” (Project Management Institute, 2013, p. 715).

Program Management – “The application of knowledge, skills and principles to a program to achieve objectives and obtain benefits and control not available by managing program components individually.” (Project Management Institute 2013, p. 715)

Project – “A temporary endeavor undertaken to create a unique product, service or result.” (Project Management Institute, 2013, p. 715)

Project Management - “The application of knowledge, skills, tools and techniques to project activities to meet the project requirements” (Project Management Institute, 2013, p. 716)

Project Portfolio Management – “The centralized management of one or more portfolios to achieve strategic objectives” (Project Management Institute, 2013, p. 714)

Strategy and Objectives – “The definition of an organization’s intended achievements in terms of business results interpreted from various perspectives – financial, customer, infrastructure, products and services, or by cultural outcomes that are measurable” (The Standard for Portfolio Management, 2013, p. 181).

System - Kim (1999, p.2) defined a system as “any group of interacting, interrelated, or interdependent parts that form a complex and unified whole that has a specific purpose.” Almost always defined with respect to a specific purpose within a larger system. (Kim, 1999 p. 19)

Systems Thinking – “A school of thought that focuses on recognizing the interconnections between the parts of a system and synthesizing them into a unified view of the whole.” (Kim, 1999, p. 19)
The following section of this chapter includes a description and discussion of systems thinking and project portfolio management, which served as the theoretical lens for this study.

**Theoretical Framework**

In qualitative research, the theoretical framework can take one of several forms; it can be invisible, can partially guide the research process or be an integral component of each step conducted (Ravitch and Riggan, 2012). The framework selected for this study intended to apply it in a comprehensive way - to support the development of the central question, the design of the study, conduct the analysis, confirm the findings and establish conclusions. To construct this study, there were several factors at work. One was around the process and the decision-making framework that was used to select projects and the second around the maturity of that framework.

Systems thinking is the theoretical framework for this study. At its basic level, a system is a group of interconnected parts – interrelated, interdependent or interacting elements - that form a whole with a specific purpose (Kim, 1999). Beyond purpose, Kim (1999) noted that the characteristics of a system include the presence of necessary parts to optimize its purpose, arranged in an order for the purpose to be achieved and utilizes feedback to maintain a stable state. Meadows and Wright (2008) explained that systems thinking allows the examination of the relationship between the structure of the system and its behavior. Through their work, they noted that an understanding of how the system works promotes awareness of why it may produce sub-optimal results and how to direct the system to improved behavior. Characteristics of systems that work well include resilience, self-organization and hierarchy (Meadows & Wright, 2008).

Jackson (2003) identified Ludwig von Bertalanffy (1968) as an early systems thinker and recognized that he worked to distinguish between (biological) closed systems (no exchange with
environment) and open systems (interaction with environment required for its existence) and then extended this theory to other domains as general systems theory. Jackson (2003) noted Norbert Wiener (1966) as another early systems thinker, introducing control (positive and negative feedback) and communication (exchange of information to human or machine) into the systems thinking framework. Jay Forrester (1997) worked to extend systems thinking to more strategic problems with his team at MIT, adding learning as a key component; the premise being that if managers could learn how complex systems worked, they could work to optimize it (Jackson, 2003). Senge (2006) included systems dynamics as the key to learning organizations, building eleven laws to his fifth discipline; in addition to Senge (2006), Donatella Meadows (2008), another key systems thinker, was also part of Forrester’s (1997) team (Arnold & Wade, 2015).

**What is Systems Thinking?**

Kim (1999, p. 2) defined a system as “any group of interacting, interrelated, or interdependent parts that form a complex and unified whole that has a specific purpose.” Schiuma, Carlucci and Sole (2012) noted that systems thinking looks at the relationships between the parts of the system and the influences these have on each other and the system as a whole; looking at the parts themselves does not allow for an understanding of the issue. Examining the parts with the whole allows for a comprehensive view of the system and the ability to better respond to complex decisions (Schiuma et al., 2012). Schiuma et al. (2012) explained that typically, a systems diagram is built using a causal loop diagram using arrows to connect variables to show how the variable affect each other and to conduct an analysis of a system’s behavior.
The Process of Systems Thinking

There are several characteristics that define the process of systems thinking. All parts in the system must be present for the system to work and the order of the processing of the parts affects its performance (Kim, 1999). Kim (1999) indicated that the system works to stabilize itself through feedback; feedback, a key component of systems thinking, provides information back to the system to share how it is doing compared to its required state. Systems thinking considers a process not as a linear cause and effect but rather through the relationship between all parts, generally depicted through loops (Kim, 1999). Kim’s (1999) research explained that reinforcing and balancing processes are the building blocks of system behavior; reinforcing processes occur from positive feedback – compounding change in one direction and tend to destabilize the process. Balancing processes are the system stabilizers and work to keep the system at a desired performance level, resisting too much change in one direction with a change in the opposite direction – working to resolve the gap between the goal and actual states (Kim, 1999). Kim’s (1999) work shared that another key component of systems thinking is the concept of delay – physical delay is the time to move “stuff” from one place to another, transactional delay is the time spent in transactions, information delays is the delay time to communicate information and perception delay, the time to shift perceptions.

Models are used to represent systems (Kim, 1999). Kim (1999) acknowledged that commonly used models include the causal loop diagram and the stock and flow diagram; the causal loop diagram shows interrelationships between the parts while the stock and flow diagram shows stocks or accumulators, things that can be measured at a point in time – i.e. population, and flows or rates, and things that change over time – i.e. birth rate, death rate. Together, these two diagrams show the stocks and flows, how they influence each other and how the feedback flows through the system (Kim 1999).
Systems thinking has a number of tools to focus on the understanding of existing systems. (Monat & Gannon, 2015). Systems archetypes, common problem-causing patterns that occur repeatedly, can assist in resolving destructive system structures. These include Accidental Adversaries, Fixes that Fail, Limits to Growth, Shifting the Burden, The Tragedy of the Commons, Drift to Lowe Performance, Escalation, The Rich get Richer, Rule Beating and Seeking the Wrong Goal (Monat & Gannon, 2015). Their literature review (2015) noted other key systems thinking tools, including behavior over time graphs, root cause analysis, and the systemigram, a portmanteau word from system and diagram, in addition to causal loop and stock and flow diagrams, noted above.

There are two methodologies in systems thinking – hard systems thinking and soft systems thinking (Jackson, 2013). Jackson (2013) explained hard systems thinking as engaging scientific modeling, rational testing and processes for implementation and evaluation and soft systems thinking as an approach that acknowledges subjectivity, allowing different viewpoints are explored as central to the process. Hard systems thinking was first developed in response to solving management problems and as the complexity and plurality of participants grew, soft systems thinking evolved (Jackson, 2013). Mingers (2009) explained that Peter Checkland (2004) developed the foundation for soft system thinking, by transforming the theory to human activity, highlighting irrationality, creativity and values. Using an internal view of the problem, it is used to facilitate different worldviews and models a non-quantitative analysis with an aim to explore, learn and commit; not to optimize (Mingers, 2009). In contrast, hard systems thinking is oriented to goal seeking, optimization and prediction (Checkland & Holwell, 2004). Hard systems thinking aligns with the intent of project portfolio management – ensuring alignment between projects and programs with strategies and goals of the business, communicates program and project financial costs, benefits and other details and is a systems approach to business
projects, investing in the right projects and programs, optimizing capacity and realizing benefits. (Enterprise Portfolio Management Council, 2009).

Senge and Sterman (1992) promoted systems thinking as a way to consider dynamic, versus, detail complexity often addressed by planning. Dynamic complexity requires thinking in the context of interdependencies that involve multiple sources of delay and nonlinearity and patterns of change that evolve over time (Senge & Sterman, 1990). Senge and Sterman (1990) concluded it is this dynamic complexity that underlies key policy and strategy issues.

**Systems Thinking and Project Portfolio Management**

Kim (1999, p. 2) defined a system as “any group of interacting, interrelated, or interdependent parts that form a complex and unified whole that has a specific purpose.” Based on this definition, a project itself can be considered a system. A system takes inputs from its environment and transforms them into desired outputs (Kim, 1999). Similarly, a project is initiated in response to an organizational need, is a system of parts (activities) that are interrelated through a schedule to deliver value to an organization, its purpose. The intent of this research is not to apply systems thinking at the project level but rather at the project portfolio level.

The system studied was how projects are identified, selected and managed within the organization. Within the project management discipline, this system is studied as project portfolio management. A project portfolio is a grouped collection of projects and programs undertaken by an organization to support meeting its strategic objectives; these may or may not be related (Project Management Institute, 2013). The Standard for Portfolio Management (2013) stipulated that project portfolio management (PPM) works to identify the interrelationships between these elements to ensure limited resources are optimally allocated in alignment with strategic objectives. The Standard (2013) explained that PPM is the coordinated management of
the portfolio with the purpose to meet the organization’s strategies. Its interrelated processes
guide an organization in the identification, selection, prioritization, governance, and monitoring
and controlling of the portfolio to achieve organizational objectives (Project Management
Institute, 2013).

Figure 1 – Project Portfolio Management (PPM) Overview

The Standard for Portfolio Management (2008) provides an overview of the process
steps, summarized in Figure 1. In Project Identification/ Categorization, a list of ongoing and
potential new projects, with necessary information, is created and projects are assigned to
relevant business categories based on the strategic plan (PMI, 2008). The Standard (2008),
describes the work in Project Evaluation/Selection to qualify and/or quantify each project
according to business strategy and other relevant organizational criteria to create a subset of
projects worthy to be considered at the individual project level. During Prioritization of
Projects/ Balance Portfolio, each project is ranked within the strategy category, investment time
frame, and organizational focus and then the portfolio of projects is balanced to optimize
meeting the organization’s strategy while balancing criteria that include resource availability,
risk and portfolio return resulting in a recommended portfolio of projects (PMI, 2008). Work
completed in Portfolio Authorization is confirming the approved portfolio and formally
allocating resources; during Portfolio Oversight work is ongoing to validate and manage the portfolio as a whole based on metrics and business changes (PMI, 2008).

In The Standard for Portfolio Management, PMI (2013) noted that organizational project management (OPM) uses project, program and portfolio management to deliver organizational strategy. Though each differs in their contribution to strategy achievement, these must be aligned (PMI, 2013). The Standard (2013) went on to say that portfolio work supports organizational strategies by selecting the correct mix of prioritized programs and projects that can be completed with the available resources. To clarify, project portfolio management supports alignment of the projects and programs to strategic objectives, allocates resources (financial, human and material/equipment), and manages risk (opportunities and threats) (PMI, 2013). Portfolio management includes “processes to identify, categorize, monitor, evaluate, select, prioritize, balance and authorize portfolio components within the portfolio” (PMI, 2013, p. 21). The Standard (2013) advised to order to implement a portfolio management process, the current state of the portfolio management process must be assessed, the portfolio management vision and plan should be defined, the portfolio management processes to meet the vision/plan identified and implemented, and a continuous improvement plan to the portfolio management process recommended.

To connect this with the systems thinking framework, PPM is a system – its interconnected parts create a process with a purpose to sustain an organization through the selection of the projects and programs necessary to meet its strategy (PMI, 2017). The Standard for Portfolio Management (2017) goes on to note that through an understanding of its purpose, its parts, and the sequence of these parts, it is possible to examine how effective the project portfolio system is and to offer suggestion to improve its performance.
Project Portfolio Management Maturity

Project portfolio management has been studied against maturity frameworks; maturity frameworks came into prominence in more recent years though the Software Engineering Institute’s (SEI) capability maturity model (Pennypacker, 2012). Pennypacker (2012) explained that the model analyzes a process through five stages of maturity ranging from Level 1 (Initial) to Level 5 (Optimizing) – as an organization moves from one level to the next, its efficiency and effectiveness in that domain are improved. An organization needs to understand its current and goal states of maturity (based on its strengths and systems) and work to move to that goal state (Pennypacker, 2012).

At the project level, a study by Albrecht and Spang (2013) concluded that the level of project management maturity of an organization affects the project success rate in a positive way. The higher level of maturity accompanies more formalization of the organization’s project management operations (Albrecht & Spang, 2013). Their study (2013) also noted that the ideal level of maturity is not assumed to be a level 5 but rather based on business and other organizational factors. Within this study, using the PPM maturity framework to analyze the systems thinking approach to PPM allowed a validation of its current level of maturity and to consider how to improve the system with this additional lens.

Critics

The critics of systems thinking focused on the different definitions of what the process is about, ranging from Jay Forrester’s (1997) argument that the term system thinking has no clear application and implied a general awareness to other theorists who define the term along different dimensions (Arnold & Wade, 2015). Arnold & Wade (2015) explained that within the field, there are advocates and critics for hard systems versus soft systems thinking.
Jackson (2003) noted that hard systems thinking engages scientific modeling, rational testing and processes for implementation and evaluation. Critics of the hard systems thinking approach related to its inability to address complexity, to cope with multiple values and beliefs as well as politics and power while soft systems thinking acknowledges subjectivity, allowing different viewpoints as central to the process (Jackson, 2003). Jackson (2003) stated that soft systems thinking may employ the same methodology to solve the problem, but the system model will be different. Jackson (2003) argued to determine the ideal systems thinking approach, the complexity of the system (simple or complex) as well as the nature of the participants (unitary, pluralist, coercive) be considered to guide the thinking to hard (simple-unitary) or soft (complex, pluralist).

Jackson (2003) noted systems practitioners who resist that systems methodologies result in improvements. Additionally, Keys, Flood and Jackson (2003) cautioned against the creation of models that were not rigorous and appeared to be built without sufficient analysis (Jackson, 2003). Jackson’s (2003) work went on to view Senge and Forrester’s (1980) works as unscientific and worked to reduce complexity to a small number of models, system archetypes, stating if the models are not realistic the insights gained will not be reliable. Jackson’s (2003) criticism also related to the unpredictability of social systems though concluded that the analysis performed provides more value than no analysis.

**Application**

Organizations are challenged to balance the projects, programs and operational work necessary to achieve their strategy given capacity, risk and other key criteria. The processes available to select the work to be completed connect as a system – one with dynamic behavior that should be optimized to maximize successful projects delivered and support achievement of its strategic goals. Systems thinking was applied to understand what the current process model
included and how it supported strategic outcomes for the HEI. Project portfolio management maturity was mapped against this system to understand the current maturity state and, as a result of the study, begin to understand its ideal state and outline steps to achieve that.

This qualitative study followed an instrumental case study methodology. The sites for the case study included two universities. Purposively selected, the HEI leaders interviewed included the leaders who are responsible to select and manage their portfolio of projects. Considering Yin’s (2011) six sources of evidence, publicly available documentation, interviews, and direct observations were also used. In conducting the study, once IRB approval was received, an interview protocol was used to guide the interviews, which were recorded. A pilot confirmed the protocol was comprehensive and following this, the interviews were conducted. Data were transcribed, analyzed and coded using the two conceptual frameworks, systems thinking and project portfolio management maturity. Findings to the research question were presented. Ethical considerations and validation were considered in the study and the positionality of the researcher was defined and actions to avoid bias recommended and limitations analyzed.

**Conclusion**

**Background**

Given the current challenges in higher education, HEIs are being pressed to complete more and more projects while facing reduced budgets. Alternative strategies to optimize value should be examined. As the non-profit environment becomes more complex, project management is a set of tools to help leverage the capacity by first selecting only the right projects and then completing them in the right way. The lack of sufficient literature addressing the role of project portfolio management in higher education offers a potential gap in current
research and application. It would seem much could still be learned about project portfolio management’s role in HEIs. Working to ensure that the PPM process that matches the necessary project management maturity may allow these organizations to be efficient and effective in delivering value to its strategy.

**Research Focus**

The focus was to study the process that HEI leaders use to create their portfolio of projects, to understand factors that support or hinder this process, and to examine the results of the process in terms of meeting organizational strategic goals. The shorter-term implications of this work was to allow HEI leaders to understand the value of their current project portfolio management process, what contributed to its success and what challenges impeded it realizing its full value. From this, HEI leaders may identify small changes that will create a more strategically balanced portfolio of projects. This was studied by examining the current challenges within a HEI, its current project portfolio process and the strengths and weaknesses of this process in helping the organization choose projects that satisfy its mission and goals within its stated capacity.

**Framework**

Systems thinking and Project Portfolio Management Maturity Framework were the frameworks for this study. Systems thinking was used to examine the holistic process that is used to identify, select and manage the collection of projects and the strengths and challenges in delivering to the HEI’s strategic goals. This process was compared to benchmarks in PPM maturity in order to analyze if it is at the optimal level of maturity, and what changes, if any, might be recommended to the HEI to maximize value in its selection process.
Conclusion

Given the current state of the HEI, systems thinking and PPM maturity were framed to the current process for how HEI leaders identify, select and manager their slate of projects. The intent was to identify and build on its current strengths and to provide recommendations to resolve its challenges. Therefore, the purpose of this case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals. Chapter Two will present a literature review of project portfolio management, project portfolio management and systems thinking. Chapter Three will detail the approach and methods that will investigate the problem of practice through data collection and analysis.
CHAPTER 2 – LITERATURE REVIEW

Therefore, the purpose of this case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals. The intent was to examine the portfolio selection practices of leaders within two universities. The central question guiding this research was “What is the process that HEI leaders use to choose and maintain their slate of projects?”

This literature review begins with an introduction and explores the current state of project management and its relationship to successful projects. It then considers the current higher education environment and the how project management has been applied in that industry. Project portfolio management is introduced and related to the project management field. The benefits of project portfolio management are reviewed with a focus on sound practices and processes used to create the portfolio as well as challenges in implementing PPM. The higher education portfolio and PPM are discussed. This review then explains the PPM maturity process and its use in optimizing portfolio selection; this is one of the frameworks to be applied in the analysis. PPM is discussed in terms of systems thinking, the second framework used in this study. The systems thinking domain is reviewed and followed by an explanation of how it can be used to define, analyze and improve a process.
Introduction

This literature review examined project management and its general role in support of delivering successful projects. Specifically, it examined how organizations define and select projects to meet organizational strategies, goals and objectives. Following a funneling technique, the first section of this literature review examined project management and its value in supporting organizations in successful delivery of projects while focused on the identification of challenges faced in higher education. The current state of projects and project management within higher education was surveyed. A key part of project management – the definition and selection of a portfolio of projects – was reviewed generically and then its application reported. The maturity of the project portfolio management process was explained and then related to a second framework - systems thinking. Systems thinking was explored in general and its use in project portfolio decision making considered.

Project Management

This section reviewed the current state of project management and its value in the delivery of projects. The current state of higher education institutions and the challenges these organizations face were explained. Project management was explored as a set of tools that could assist HEIs in overcoming these challenges. This section also introduced project portfolio management as part of the project management domain.

Current State of Project Management

Project based work was noted as growing significantly within organizations given the trend to structure work around projects (Svejvig & Anderson, 2015). Projects, defined as temporary endeavors to deliver a unique product or service, are one means non-profit organizations use to create and deliver services to its stakeholders; by applying effective and efficient project management, the “knowledge, skills, tools and techniques to project activities to
meet the project requirement” (Project Management Institute, 2017, p. 5), the probability of each project being successful is enhanced. Key to meeting the organization’s mission and goals, in addition to delivering successful projects, is to ensure the correct mix of projects are identified, selected and implemented. Within project management, project portfolio management is the specific set of tools, techniques and processes to select the correct projects to complete (Project Management Institute, 2017). Project management can be applied to the management of a single project or a portfolio of projects (Lappe & Spang, 2013). It has been seen as the principal model to support the implementation of strategy, business transformation projects, and continuous improvement initiatives (Shi, 2011).

Wierschem and Johnston (2005), identified key drivers contributing to project failure to include poor project planning, a weak business case and lack of support from executive leadership. Businesses have realized the value of applying project management tools and practices to deliver business results effectively and efficiently (Wierschem & Johnston, 2005). Formalization of project management practices at the single project level has shown benefits that include increased customer satisfaction, better cost effectiveness, a higher quality product and increased on-time delivery (Teller, Unger, Kock & Gemunden, 2012). When studying factors that contribute to project success, Hartman & Ashrafi (2004) identified key actions that included alignment of each project with organizational strategies at the start of the project, though they noted that this analysis of how the project contributed to business factors was often skipped over in favor of focusing on the time, cost, scope and quality of the project. Missing alignment on success and priorities affected the subsequent success of the project (Hartman & Ashrafi, 2004).

Projects are the means an organization uses to achieve its mission and vision (Hyvari, 2014). Organizations have adapted project management to increase productivity; one study concluded that there is a notable increase in the use of project management (Mir & Pinnington,
Companies that worked to increase their project management maturity through the use of project management have seen increased project performance (Lappe & Spang, 2013). Project management is an effective tool to achieve an organization’s objectives; as revealed in a study by Mir and Pinnington (2004), examining the independent variable, project performance, to the dependent variable, project success, it was recommended that project-based organizations invest in a project management framework. One key finding was to make policy and strategy more visible in the project management framework (Mir & Pinnington, 2014).

**Project Management and Successful Projects**

Hartman & Ashrafi (2004) noted that a lack of planning played a major role in why projects fail and that support for project success included agreement on success criteria with stakeholders at the start of the project, creation of measures that allow project performance to link project and organizational success, and a balanced scorecard that aligned the project with corporate strategy. Their study (2004) went on to suggest that issues leading to failure included implementing a project management framework that did not address the specific organizational environment, was misaligned with corporate strategy, success expectations were different among stakeholders and front-end concerns were not resolved. Hartman and Ashrafi (2004) noted that projects were delivered ahead of schedule, under budget and exceeding stakeholder requirements by clearly articulating outcomes, planning at the appropriate level of detail, managing stakeholder expectations, aligning the project strategically, engaging in risk management and mitigation, and nurturing an effective team through building the plan.

The Project Management Body of Knowledge, or PMBOK, (Project Management Institute, 2017) stated that project management provides a structure for completing projects by applying the appropriate processes and tools to meet the needs of the project. Project management has led to increased probability of project success by efficiently distributing
resources and management of issues and risks; in the business setting, project management may decrease cycle time, reduce rework and increase revenue (Alpert & Hartshorne, 2013). Organizations that have not gained a benefit from implementing project management was because it was not introduced or applied correctly (Shi, 2011).

Single project management is no longer enough to guarantee success within an organization. A comprehensive view of all projects was found to be necessary (Hyvari, 2014). This study (2014), shared that, increasingly, organizational leaders need to align projects with strategy and environments prone to change. Shared alignment and vision between project sponsor and project manager have increased the odds of project success (Onu, 2012). This has required both leaders and projects to be strategic (Pitsis, Sankaran, Gudergan & Clegg, 2014).

**Challenges in Higher Education**

Higher education institutions have been facing increased competition in complex environments; within the university, conflicting pressures exist between available funding and the many potential projects that could be completed (Raudla, Karo, Valdmaa & Kattel, 2015). Higher education budgets have been stretched, donor donations are flat, government funding is decreasing and admit rates are decreasing due to increasing competition and increasing tuition rates (Austin, Browne, Haas, Kenyatta, & Zulueta, 2013). Universities have been asked to respond to social issues, improve the quality of learning, and to respond to regulatory demands; education for new careers needs to be prepared, new technologies need to be implemented and the evolving needs of students must be addressed (Daniel, 2015). The student demographic has shifted to include working adults and more transient students (Milkovich, 2015).

This complexity has led to the initiation of projects to support the institution in meeting these needs; delivery of these projects has been challenged by limited staff, funding constraints and the need for a quick delivery on projects (Van Rooij, 2010). Higher education has been
faced with funding pressures, public criticism, performances expectations and cost control
demands and academic culture is not one that has embraced organizational change; faculty and
staff have enjoyed their academic freedoms (Holmes, Jenicke & Hempel, 2015). Given these
challenges, it was noted critical to implement strategic management and financial management
through projects and their funding (Raudla et al., 2015).

**Project Management and Higher Education**

Project management hasn’t had the same impact in higher education as it has within for-
profit organizations and much of the literature reviewing the application of project management
in higher education has been anecdotal (Wierschem & Johnston, 2005). The most common
application of project management within higher education has been for IT projects (Alpert &
Hartshorne, 2013).

Faculty have been engaged in a number of different types of projects, including
curriculum development, service and research (Alpert & Hartshorne, 2013). Their study (2013)
suggested that the success of research projects could be increased by providing faculty with
training in project management, providing research support and putting systematic processes in
place. In their study, Alpert & Hartshorne (2013), noted that in their 2009 study, Bryde and
Leighton proposed that project management can support demands for improved efficiency based
on decreased reliance on public funding. Alpert & Hartshorne (2013) studied the current state of
project management within the research faculty of higher education institutions and concluded
that project management could be used to decrease the time to conduct and publish research.

**Conclusion**

This section worked to introduce project management as a method to support successful
delivery of projects. Studies have indicated that project management could be more effectively
applied within HEI to help deliver projects. Single project management is no longer sufficient to
guarantee results; PPM is the part of the project management domain that supports an organization in translating strategy to the correct mix of projects. The next section of this literature review explains PPM.

**Project Portfolio Management**

This section explains project portfolio management and how it has developed. The section goes on to note the relationship between project and project portfolio management and then details out the process of PPM and good practices in that process. Portfolio selection criteria are reviewed. The section reveals that PPM, as a process, can employ a maturity model for analysis of its operational effectiveness. It concludes by linking the PPM process to systems thinking.

**What is Project Portfolio Management (PPM)**

The seminal work of Markowitz (1952), used for financial asset selection to create an optimal investment portfolio, was the foundation for project portfolio management (Kaiser, Arbi and Ahlemann, 2015). Markowitz’s (1952) seminal work focused on the efficiency between risk and expected return and was applied in product development organizations in the late 1960’s to early 1970’s to first optimize the balance of product development and then for research and development projects to decide which project were selected and assigned scarce resources to meet strategic objectives (Petit & Hobbs, 2012). The framework was applied to project selection in the product development space by Cooper, (2013), by McFarlan (1981) in the Information Technology Project Management realm and by Vergara and Boyer (1977) in Construction (Kaiser et al., 2015). With the evolution of the project-oriented organization in the 1980’s through 1990’s, focused to manage both the successful single project and also achieve business needs by selecting and prioritizing the right projects, led to the development of the PPM domain (Petit & Hobbs, 2012).
Project portfolio management (PPM) is a process that integrates an organization’s collection of projects with its other initiatives; it requires establishing the priority of projects, clearly determining what is and is not included in the portfolio, and allocating necessary resources to projects (Voss, 2012). PPM is the method to translate corporate strategy to a portfolio of projects that, when delivered, support realizing that strategy (Pajares & Lopez, 2014). The intent of PPM, through its linkage with organizational strategy, is to build and implement a balanced plan for the organization to achieve its goals (Hyvari, 2014). It works to increase the return of an organization’s project investments by providing a strategic framework to contribute to the organization’s competitive advantage (Petrinska-Labudovikj, 2014).

Martinsuo (2013) recognized project portfolio management as a process to ensure that projects being completed within an organization are aligned with the strategy of the organization; the process also serves to track and measure project metrics during its execution to ensure that this strategic alignment continues. PPM works to coordinate and control the selection and delivery of multiple projects within the organization, targeted to meet the strategic goals by employing the organization’s resource pool (Martinsuo, 2013). PPM supports an organization in selecting the right projects from idea through implementation (Teller et al., 2012) without taking on too much risk (Kaiser et al., 2015). The purpose of PPM includes overcoming issues that include too many active projects to effectively complete, an incorrect project mix, not enough of the correct resources and mis-connecting the vision of the organization with the goals to link organizational strategy to the portfolio, to balance the capacities of the organization and to optimize the financial return (Stettina & Horz, 2015).

Dehouche (2015) noted the use of PPM increased in organizations because of the growing focus of project-based work and to allow these organizations to confirm that the right projects were being completed. At minimum, the PPM process contains two steps – to evaluate
each component proposed for the portfolio and then to select projects based on the established criteria (Dehouche, 2015). To create an effective portfolio, the organization, defines a strategic roadmap for the organization, completed at the highest level in the organization to set the strategy (Stettina & Horz, 2015). Their study (2015) continued that projects are identified and collected through the entry point of the process, typically by middle management. Each project is reviewed based on its high-level plan, prioritized for inclusion in the portfolio and then the portfolio balanced against pre-determined factors (Stettina & Horz, 2015). Once balanced, resources are allocated to the projects and authorization awarded (Stettina & Horz, 2015).

The criteria for selection has included a variety of factors; criteria critical to the success of the organization have been noted as paramount to include, driven by the needs of the strategic goals and after the portfolio has been selected, continuous evaluation of the portfolio is necessary (Kaiser et al., 2015). Success of the portfolio has included an analysis of financial results, performance criteria, realization of business strategies and the balance of resources and capabilities (Voss, 2012). Project portfolio management is not a one-size fits all organizations and the optimal PPM process depends on the organization and may include factors involving risk, project size, short vs. long term goals and the project type (i.e. new product vs. maintenance of existing products) (Voss, 2012).

**Project Management and PPM**

Despite the increased project maturity enjoyed by some organizations, there were claims that project thinking needed to broaden its reach beyond a single project focus and consider the management of multiple projects through the lens of organizational strategy and the environment the projects exist in (Svejvig & Anderson, 2015). Hyvari (2014) stated that key to successful PPM included effective single project management; formalization of single project management processes contributed to PPM success since information on the projects was necessary to decide
which projects should be considered in the portfolio. The responsibility of the project team was to ensure their focus included the parts of the project that aligned with the business strategy (Hyvari, 2014). A preliminary plan was needed for any project to be considered in the portfolio and provided the basis for the scope, schedule and resources that is needed by the project to inform the portfolio decisions (Kaiser et al., 2015).

Teller et al. (2012) noted that though necessary, single project management formalization has not been sufficient to guarantee the success of the portfolio and indicated as the number of projects within an organization increased, PPM supported the management of dependencies between projects. Their study (2012) concluded it critical that execution of the PPM was effective and efficient to support the process of the single project and that formalized PPM increased the effectiveness of the single project process due to effective resource allocation and commitment to the project. Single project formation does belong to PPM since it is integral to the selection process (Teller et al., 2012). PPM connects the organization’s strategy to its allocation of resources to the portfolio projects (Stettina & Horz, 2015).

The Project Management Institute (2017) defined that each project has a start and an end. However, the project portfolio management process is ongoing (Hyvari, 2014). It is necessary to consider these two factors and integrate other organizational processes with PPM including annual planning and strategic reviews (Hyvari, 2014). At the project level, PPM works to ensure that each project is optimized to contribute to portfolio success and that customer integration is a critical success factor (Voss, 2012). Voss (2012) shared that at a more strategic level, PPM works to structure the portfolio, manage resources at the portfolio level, steer the ongoing coordination of the portfolio and work to capture the value by exploiting projects for results, confirm organizational learning and secure project success; the customer and its interests need to be implemented into the PPM as well.
Benefits of PPM

Recognizing that organizations have more projects to accomplish than the capacity to deliver, Kaiser et al. (2015) stated that determining the right projects to complete is complex work. PPM is the method to guide an organization in identifying the correct mix of projects with the advantage of implementing PPM to make an unbiased evaluation across organizational boundaries (Kaiser et al., 2015). The goals of PPM are to ensure both strategic alignment and a balanced portfolio and to maximize the portfolio benefits (Petrinska-Labudovikj, 2014).

Organizations have implemented PPM to respond to the demand for increased visibility of project budgets, to ensure alignment to strategy and to better control and manage resources while studies show the formalization of PPM increases portfolio performance (Teller et al., 2012). The process has provided the organization with insight into the projects in the portfolio at a strategic level, enabling better decisions supporting the delivery of successful projects; PPM operationalizes the business strategy (Voss, 2012) and provides a rational framework for selecting projects based on meeting strategy, resolving competitions for the same resources, creating an awareness of factors influencing the project and other knowledge that creates criteria for selection (Martinsuo, 2013). PPM done well ensures an organization invests in the projects with the greatest value stream impact (Petrinska-Labudovikj, 2014).

The value of PPM to meeting organizational strategies is realized by aligning the portfolio to strategic objectives, managing risk, measuring the performance of each project in the portfolio, and appropriately allocating resources, dollars and material/equipment (Hyvari, 2014). Hyvari (2014) stated that the benefit of linking PPM to the organization’s strategy is to create an actionable plan of projects to support the organization in meeting its goals. PPM works to eliminate double work with the organization and to identify opportunities for consolidation and collaborative efforts among projects (Voss, 2012).
Despite the attention paid to project management and the potential of PPM, Martinsuo (2013) recognized that within many organizations, too many projects are selected. Team members have been overworked, the PPM model has been critiqued and the process neglected due to a lack of awareness of PPM, limits on resource sharing, risks at the project and portfolio level and project changes (Martinsuo, 2013). Petrinsk-Labudovikj (2014) explained that without effective PPM, projects are not aligned with strategy, there are too many active projects – stretching resources too thin leading to a decrease in quality – the wrong projects may be selected and good projects are not optimized, reducing their contribution to organizational strategy.

**Best practices in PPM to create a sound portfolio**

To effectively implement PPM, it is critical for the organization to identify challenges, both strategic and tactical, that would impede the organization’s ability to manage a portfolio of projects (Teller et al., 2012). The study (2012) suggested that clear objectives for the PPM process must be established and resources assigned to oversee the implementation. The current state of how the portfolio is selected and managed should be identified as well as the steps in the process that should remain (Teller et al., 2012). Teller et al. (2012) recommended that key stakeholders in both the current and future state process must be identified, the future state road map for PPM created and the information to track, manage and communicate the portfolio must be established and implemented at both the project and portfolio levels. Basic project information would include the project objectives, high level resource requirements, constraints, risks, benefits, business case, schedule and as the project progresses, the budget for the project compared to actuals expended to complete the work and commentary on issues and accomplishments (Teller et al., 2012). The authors (2012) showed that the formalization of the PPM process increases the performance of the portfolio. Steps to transition from the current to
future processes must be considered to support as smooth an implementation as possible (Dehouche, 2015).

The PPM framework needs to be a developing process for and between stakeholders (Martinsuo, 2013). The process must include clear criteria for go/no go decisions and for prioritizing individual projects in the portfolio and it is recommended for portfolio managers to ensure the PPM is well-constructed and to confirm compliance within the organization’s context (Teller et al., 2012). The study (2012) suggested that this allows complex decisions to be made quickly, supporting speed of implementation and quality improvements. The process must be adequate to meet the needs of the organization and aligned with its structure (Kaiser et al., 2015). All steps in the PPM process, including component evaluation, prioritization, and selection, should align the portfolio with the company’s strategy, balance risk and optimize resources and should also consider project size and short vs. long term goals (Voss, 2012). Stettina and Horz (2015) concluded that the typical process steps in PPM are identify, prioritize, allocate, balance and review.

Using Dehouche’s (2015) two-step process as a framework, the evaluation step is used to justify why a project would be included or rejected in the portfolio and guides the ongoing monitoring and controlling of the portfolio. Clearly defined criteria contribute to the success of the PPM (Holmes & Hempel, 2015). Dehouche (2015) stated that evaluation and selection criteria should be selected prior to beginning the process and guidelines should be set to remove subjectivity from the process and ensure equitable treatment of potential projects. The study (2015) suggested that characteristics of the portfolio should be established and during evaluation, the project budget is secondary to other criteria with the focus on understanding the potential projects. Clearly defined criteria contribute to the success of the PPM as well as consideration and integration of stakeholder needs (Dehouche, 2015).
Criteria for creating a portfolio include project evaluation – what value does it create (i.e. save, avoid, reduce), where does it align with strategy (enterprise, business unit, organization) and balance (resource availability, probability of success, non-dollar benefit) (Enterprise Portfolio Management Council, 2009). The Enterprise Portfolio Management Council (2009) offered a selection classification for projects as must do, needs to do, should do, could do. Cooper & Kleinschmidt (2006) identified 6 metrics in their work to determine how sound an organization’s portfolio is; these include alignment with business objectives, the portfolio contains very high-level projects, the spending reflects the business strategy, projects are not delayed by gridlock defined as a key resource not being available, the portfolio has a good balance of projects and it has the right number of projects. The study showed that the “worst” portfolio relies on financial criteria only to select its portfolio while the best relies on these as well as other factors (Cooper & Kleinschmidt, 2006).

Archer and Ghasemzadeh (1999) shared a number of techniques for portfolio selection. These include ad hoc techniques (minimum criteria and scoring), comparative techniques (include pairwise comparison, analytical hierarchy process -AHP - and Q-sort), scoring models (integrating cost, resource availability, probability of success), portfolio matrices (i.e. risk vs. value) and optimization models (Archer, 1999). Scoring models increase the number of criteria used in PPM and allows the inclusion of non-financial factors, including alignment with strategy, delivery of realized benefits, market potential, leverage of core competencies, technical feasibility, reward potential and risk potential (Cooper, 2013) to decide if a project should be prioritized or terminated.

Because organizations may have a mix of projects – and small projects may consume resources, leaving no time for large, breakthrough projects, one solution is to create strategic buckets for project types and then set aside a percentage of resources for each bucket (Cooper,
Cooper (2013) suggested that proposed projects should be categorized by bucket and then prioritized within that bucket until all resources are allocated. Selection criteria and measures can vary and should derive from strategic goals; key project selection criteria should align the portfolio to organizational strategy (Kaiser et al., 2015).

Once the portfolio is selected, the process moves to continuous review and a portfolio management plan should be created to manage the portfolio and maintain its alignment with changes in strategy (Hyvari, 2014). This allows the portfolio to adapt to changing conditions and re-align with new organizational strategies (Milkovich, 2015). From a personal competencies perspective, negotiation, bargaining, reconfiguration of the project structure and a clear decision-making process should be considered (Martinsuo, 2013). Decision making needs to include senior leaders at the same hierarchical level as the strategic decision makers (Kaiser et al., 2015).

Contributors to failure of the PPM process, considered a risk for successful PPM implementation, have included poor focus, lacking justification of selected projects, too broad of a scope for the portfolio and projects not connected to business and financial goals (Holmes & Hempel, 2015). Ang, Sankaran & Killen (2016) noted that PPM drives value in an organization; this value can be subjective since deciding which projects to fund can be based on both tangible and intangible measures. It is important to consider if the organization is investing in the right things – or not – if its capacity is optimized, if the benefits are being realized, organizational changes can be absorbed and the project work is well executed since necessary resources are available (Enterprise Portfolio Management Council, 2009).

**Challenges in Implementing PPM**

The organizational change to implement PPM is not challenge-free. Hyvari (2014) recognized that one key factor to overcome included confirmation of executive sponsorship and
since PPM is a top-down process, it is critical that the leadership is driving this process. Senior managers and project managers must engage; a barrier exists since most senior leaders do not possess in depth knowledge in project management (Hyvari, 2014). Other challenges in implementing PPM include integration with existing processes, commitment to the PPM process, and agreed upon guidelines for allocating resources (Stettina & Horz, 2015). Stettina et al. (2018) noted that project portfolio management is tacit knowledge and not easily transferred, complicating the implementation of PPM within an organization.

The integration of PPM should be a balanced approach since too much formalization of the PPM process can paralyze the selection process and increase resistance to implementing the PPM process (Teller et al., 2015). The balance should be determined based on the complexity of the portfolio; when there is not enough governance in PPM, the process becomes more political and pet projects are engaged that may not contribute to the organization’s success (Martinsuo, 2013). This study (2013) recommended that because the organization’s environment is dynamic, changes in the portfolio components need to be tracked and risks need to be identified and monitored. This suggests a strategy for monitoring and controlling the portfolio is essential (Martinsuo, 2013).

One problem in achieving the full value of PPM has been instigated by not paying attention to the behavioral and organizational issues that must be addressed (Hyvari, 2014). This study (2014) suggested that because effective PPM addresses the strategy of the organization, leadership involvement should drive its purpose to organize which projects to include with the organization’s resources.

Stettina and Horz (2015) stated that the approach an organization employs to deliver projects may affect the PPM process and recognize that projects can range from a traditional waterfall approach to a flexible, agile delivery. Regardless of the approach, PPM can be used
and the governance applied must be balanced with the PPM process for successful application (Stettina & Horz, 2015).

**The Higher Education Portfolio and PPM**

Within the academic environment, the collection of projects spans both academic and administrative programs and measures of project success include increasing effectiveness, delivering the desired quality as well as efficiency, and ensuring that the value of the outputs exceeds the cost of the inputs (Milkovich, 2015). Project portfolio management seems to be excluded in higher education institutions, resulting in failed and misdirected projects with the deficit of information in the literature allowing its absence to be assumed (Austin et al., 2013). Many higher education institutions are missing clarity on their project portfolio, resulting in missed organizational goals (Begievic, Divjak & Hunjak, 2010) and wasted time and dollars (Holmes & Hempel, 2015). Another study noted that project management is not prevalent due to issues including resource constraints, competing interests, operating costs, lack of need for efficiency, faculty resistance to governance and feeling constrained, perceived rigidity and burden of the process (Austin et al., 2013). One study posited that PPM could support higher education institutions in performance improvement, responding to changes and aligning to strategic directions (Milkovich, 2015).

An examination of project management practices within higher education revealed several reasons why project management processes have been lacking and included misconceptions that the processes were too complex and restrictive, should only be used on large projects and a general lack of awareness (Alpert & Hartshorne, 2013). Despite this, subject deans in another study agree that it is important to align project initiatives across departments (Austin et al., 2013).
In their study of Higher Education Information Technology projects, Wierschem & Johnston (2005) explained that a number of factors were considered to rank the priority of projects. These included regulatory, administrative request, operating necessity, strategic objective, financial benefit, and resource availability; the top factor was operating necessity and the lowest ranking was financial benefit (Wierschem & Johnston, 2005). Harper proposed factors that included using demand, contingency margin and service to other programs (Milkovich, 2015). Because universities have not been measured solely on key financial indicators, a weighted and balanced scorecard approach was recommended (Holmes & Hempel, 2015).

**The Portfolio Management Maturity Model**

The intent of a PPM model is to allow an organization to determine the current maturity of their PPM process, to set priorities for short term process improvement, map out the path to the future state and track process (Pennypacker, 2005). Pennypacker’s (2005) maturity model was built on six essential components that include portfolio governance, project opportunity assessment, project prioritization and selection, portfolio and project communications management, portfolio performance management and portfolio resource management. Pennypacker (2005) disclosed that it was based on the Software Engineering Institute’s (SEI) 5 level capability maturity model – Level 1 - initial process (no or ad hoc processes), Level 2 - structured process and standards (basic processes exist), Level 3 - organizational standards and institutionalized process (organization-wide processes), Level 4 - managed process (adds reviews, audits and repositories), and Level 5 - optimizing process (continuous improvement). The model (Pennypacker, 2005) presented observations for each level of maturity within each of the components, allowing a current and future state assessment. Pennypacker (2005) explained that reaching Level 5 has not been the goal for all organizations; maturity is evolutionary by
understanding the minimum maturity where there is a return on the cost to reach that level and then compare that to the return on investment to advance to the next level. In this 2005 study, Pennypacker’s findings concluded, from a survey of 54 senior level portfolio management practitioners by the Center for Business Practices, that 58% were at Level 1, 32% at Level 2, 10% at Level 3 and 0% at Levels 4 and 5. Pennypacker (2005) instructed that the current state maturity level be determined through either an independent assessment where external assessors conduct an assessment and then work with the management team to create the improvement plan or a facilitated assessment where the external assessor works with the organization’s staff to conduct a self-assessment and then work with management to create the assessment plan.

Similarly, Mieritz, Fitzgerald, Gomolski & Light’s (2007) six-level PPM maturity model, with core dimensions of people, PPM process, financial management, technology and relationships, has been used to determine an organization’s maturity, decide how much process is value-added, and create mutually reinforcing processes, recognizing Level 3 as often the sweet spot. Merkhofer’s (2014) model also followed the five-level process with categories including Foundation, Basics, Value Management, Optimization and Core Competency.

**Conclusion**

This section explained project portfolio management and how it has evolved from earlier theories of portfolio work. The section noted the relationship between project and project portfolio management and then detailed the process of PPM and good practices in that process. Portfolio selection criteria were reviewed and a maturity model for effectiveness of that process was introduced. In conclusion, since this is a process, systems thinking can also be applied to validate the operations of that process.
Systems Thinking

This section of the literature review frames portfolio management as both a process and system and connects to the second theoretical framework, systems thinking. Systems thinking is overviewed as a theory and then its value and purpose are explained. Common systems thinking patterns are reviewed, tools are introduced and applications of systems thinking discussed.

Portfolio Management as a Process or System

Valavanides (2014) explained that project portfolios are off-equilibrium, organizational processes that needs external input to maintain the operational state within the system (business environment) to deliver its output, the successful implementation of the organization’s strategic objectives. The system to prioritize and select the components of the portfolio need to balance (Valavanides, 2014). Pajares & Lopez (2014), broke the process down into steps - the corporate strategy is defined, then projects are identified either top-down or bottom up, each project is evaluated and then prioritized, the portfolio balanced and authorized and then continuously monitored. Pennypacker (2005) suggested that there are five steps to optimizing the portfolio – Portfolio Inventory, Portfolio Analysis, Portfolio Planning, Portfolio Tracking, Review and Replanning – and recommended that these are dynamic, iterative and on-going. Miller’s (2002) four step process included Inventory, Analyze, Align and Manage. Key in Analyze was to sort by justification to see if multiple projects were solving the same problem, checking resources to resolve over commitment, and ensuring no user organization was overwhelmed with implementations (Miller, 2002). Miller (2002) indicated in Align that resource capacity, strategy balance, risk and value/financial metrics all needed to be considered.

PPM is dynamic and continuous; feedback from the system process is necessary since new projects may be identified, selected projects may underperform, or there may be a change in organizational strategy (Pajares & Lopez, 2014). PPM has provided a holistic systems approach
to business projects (Enterprise Portfolio Management Council, 2009). PPM is a dynamic process, inclusive of changing information (Cooper & Kleinschmidt, 2006). Sankaran, Haslett & Sheffield, (2012) recognized that project management has a close relationship with systems thinking and can be applied to address complexity in the process.

Many techniques have been employed to choose the project portfolio though many have not been widely used since they have required too much data, were too complex, missed addressing inter-relationship criteria and inter-related criteria and have not adequately treated risk/uncertainty (Archer, 1999). Archer (1999) noted the optimized framework as flexible and has allowed stakeholders to choose familiar techniques, analyze relevant data and has been applicable to the projects being analyzed. The process should be organized with each step providing the necessary data for the next step process and based on critical project measures that are understood by the decision makers (Archer, 1999).

**Systems Thinking Overview and Purpose**

The foundation of systems thinking was rooted in general systems theory and the work of Bertalanffy (Monat & Gannon, 2015). Systems thinking, as applied in the project management domains, is closed or hard and frames itself as a process (Kapsali, 2011).

Meadows (2008) defined a system as a set of interconnected things that produce their own pattern of behavior over time. Meadows (2008) explained that a system consists of elements connected in an organized way to achieve something; the inner-connections can be information flows that go to decision points within the system. It is the relationship between the structure and behavior that provides insights into how the system works, what causes it to generate poor results and how to improve the behavior patterns (Meadows, 2008). Systems thinking recognizes that these systems are dynamic and subject to feedback mechanisms (Monat & Gannon, 2015). It is through feedback that systems maintain stability – how it is doing relative
to its desired state (Kim, 1999). Systems thinking has been used as an evaluation system as well as an evaluation of systems (Cabrera, Colosi & Lobdell, 2008).

The purpose of systems thinking has been used to understand how the system works, to determine the contributors to less than desired results and then identify and implement actions to shift the system into better behavior patterns (Meadows, 2008). Meadows (2008) suggested systems thinking provides insight into root causes and opportunities forward by restructuring the system and leverage points for change. This requires knowing the function (non-human behavior) or purpose (human behavior) of the system; systems can have multiple functions/purposes based on the stakeholders involved which can conflict with the overall purpose/function (Meadows, 2008). Meadows (2008) noted that all of these must agree in order for the system to work successfully.

Changing any one of the three – elements, interconnectedness and purpose – will have different effects on the system; changing elements generally has the least effect, changing relationships alters the system and changing purpose impacts the system drastically, even if elements and relationships remain the same (Meadows, 2008). Meadows (2008) explained that if not all stocks are understood, the system may not behave as one expects.

**Stocks and Flows**

Stocks are any resource pool in the system and are what accumulates while flows are changes in levels of the stocks over time (Arnold & Wade, 2016). Kim (1999) explained that stocks, the elements of the system, can be counted and measured at any point in time. Stocks change over time through the flow of the system (Meadows, 2008). Meadows (2008) noted that dynamic equilibrium is when the rate of what is flowing in equals the rate of what is flowing out with the level of the stock remaining constant to what it was when the inflow began to equal the outflow. Also, to note, decisions made at the individual and organizational level are designed to
regulate the level of stocks; systems thinking regulates stock levels by changing flows through feedback processes (Meadows, 2008). Building on this, the stock and flow diagram begins and ends with clouds that define the boundaries of the system under study and shows the flows between stocks along with the processes that add to or deplete from the stock levels (Kim, 1999).

**Systems Thinking and Feedback Loops**

The basic operating unit of a system is the feedback loop and is used to correct over- or under supply in the system (Meadows, 2008). Meadows (2008) offered that feedback loops can be reinforcing (destabilizing) feedback loops or balancing (stabilizing) feedback loops. In a reinforcing (positive) feedback loop, the change continues in the same direction while in the balancing (negative) feedback loop, it works to stabilize the system by keeping it at some desired level of performance and resists change by producing a change in the opposite direction (Kim, 1999).

Reinforcing loops are found when the system element can reproduce itself or grows as a constant fraction of itself (Meadows, 2008). Kim (1999) noted that a reinforcing loop can have a snowball effect and push the system out of equilibrium. The balancing loop, driven by a gap between the desired goal level and the actual level, corrects the system’s actual level to reduce the gap (Kim, 1999). The balancing loop may not always correct – feedback may arrive too late or be difficult to interpret – and the feedback mechanism may fail to bring stock to the goal level (Meadows, 2008). There are often delays that can affect this - delays in the system can be physical, transactional, informational or perceptual (Kim, 1999). Physical delays are the physical movement in the system, transactional delays are the time that it takes transactions to be completed, information delays are related to communication and perception delays based on the insights of those involved (Kim, 1999). Because of these delays, feedback can only affect the
future behavior and can’t respond quickly enough to have an impact on what caused the feedback (Meadows, 2008).

Kim (1999) explained that a diagram of reinforcing and balancing processes at work can provide focus on the system behavior to change. A causal loop diagram (CLD) is a visual tool to show the cause and effect relationships between the parts of the system - the relationships between parts are affected by the feedback loops – and can be used to identify the leverage points (Sankaran, Haslett & Sheffield, 2012). Their study (2012) noted that as the system grows in its number of loops, the CLD may not be effective and a stock and flow diagram more applicable.

**System Archetypes**

Through the study of systems, archetypes, or recurring patterns of system behavior, have been determined (Sankaran, Haslett & Sheffield, 2012). Kim (1999) noted that system archetypes tools are applied to recognize common system behavior pattern. These archetypes are used to diagnose problems in the system and determine actions to create the changes that will resolve these (Kim, 1999). Kim (1999) explained the eight patterns to include drifting goals, shifting burden, limits to success, success to the successful, fixes that fail, tragedy of the commons, growth and underinvestment, and escalation. Meadows (2008) also recognized these common patterns in behavior, generally caused by structural issues with the system versus the natural reaction to blame involved parties or events, and noted that they must be changed or prevented through the design of the system’s structure of goals and feedback loops. In her work (2008), she described each trap in detail, its causes, ways to avoid the archetype and how to address it if it occurs in the system.
System Interventions

Meadows (2008) credited Jay Forrester (1997) with saying that the average manager can recognize the problem he/she is dealing with, know where in the system the problem exists, and where to look for leverage points - places in the system where changes would lead to significant behavior shifts; however, it is common for these managers to push the change in the wrong direction. Leverage points, the points of power in the system, are not intuitively discovered (Meadows, 2008). Meadows (2008) offered a number of considerations when intervening in a system - including a review of numbers, buffers, stock and flow structures, delays, feedback loops, information flows, rules, self-organization, goals, and paradigms.

Other Systems Thinking Tools

There are four categories of system thinking tools – brainstorming, dynamic thinking, structural thinking and computer-based tools (Kim, 2000). Kim (2000) noted that the Double Q diagram, similar to a fishbone diagram, is a brainstorming tool that results in a visual map of key factors, both qualitative and quantitative, to be considered in the issue. Dynamic thinking tools include the BOT (behavior over time graph), which shows the relationship among variables and the CLD (causal loop diagram), which presents the dynamic relationship between the system parts (Kim, 2000). Kim (2000) included system archetypes, which offer perspectives and advice to address, in this category. Structural thinking tools include the graphical function diagram, the structure-behavior pairs and the policy structure diagram, all ways to add additional depth to the system and lead to the use of the fourth category, computer-based tools (Kim, 2000).

Systems Success

Characteristics of highly functioning systems include resilience, self-organization and hierarchy (Meadows, 2008). Meadows (2008) explained that resilience is the ability of the system to survive and continue despite variations in the environment; resilience is built into the
system through a series of feedback loops that operate at different times, with different scales and back each other up. In a most resilient system, feedback loops learn, create, design and evolve the system; resilient systems are ever-changing (Meadows, 2008). Meadows (2008) revealed that organizations lose their systems resiliency when the feedback loops are delayed or the information that comes through them not clear for use. Self-organization is the system’s ability to make itself more complex and is commonly found in living systems (Meadows, 2008). Meadows (2008) explained that productivity and stability are excuses for preventing the self-organization of a system; driven by bureaucracies and numbers instead of promoting creativity.

As a self-organizing system creates new structures and increases its complexity, the third system success, hierarchy, results (Meadows, 2008). Meadows (2008) supposed that if sub-systems can care for and regulate themselves, while serving the needs of the larger system, and the overall system can coordinate and enhance how the subsystems function, the resulting structure is resilient, stable, efficient and reduces the amount of information any part of the system needs to know. The evolution of a complex system from simple systems occurs when the systems in-between are stable (Meadows, 2008). Meadows (2008) indicated that hierarchies evolve from the lowest level up and are created to support the sub-systems in doing their work well – however, in some cases, the higher levels overlook this and as a result, the malfunctioning hierarchy contributes to the system not meeting its need or the sub-system focuses on its own needs at the expense of the overall system. To be effective, there needs to be a balance of the sub-system goals and central control; the hierarchy must balance autonomy and control to keep all sub-systems as well as the complete system functioning (Meadows, 2008).
Applications of Systems Thinking

Meadows (2008) shared a number of considerations when implementing systems thinking, recognizing it is one thing to understand how to fix a system and another to actually fix it since a systems perspective raises more questions. One key insight is to watch how a system behaves before making changes to it instead of jumping to a conclusion; focus on facts and work to overcome misconceptions, observe how the elements of the system work – and don’t work together (Meadows, 2008). Meadows (2008) advised to create the structural model to ensure assumptions are valid, to ensure the model is complete and consistent and includes timely, correct and complete information sources. In applications, one must consider what can be measured as well as what cannot be measured, that the hierarchy serves the entire system, responsibilities are clearly stated and there is a willingness to learn from how the system behaves (Meadows, 2008).

Conclusion

This section of the literature review framed portfolio management as both a process and system and introduced the second theoretical framework, systems thinking. Key to this section is the use of systems thinking to define the PPM process and then examine it through the lens of systems thinking to understand how it is working, if the right components and flows are included in the thought process and that adequate feedback loops are considered. Common structural problems can be used to analyze the PPM process and to then recommend improvements all while assessing self-organization, resilience and hierarchy of the system.

Summary

The first section of this literature review recognized that the number of projects organizations are tasked to complete is growing, including within HEIs, based on competition and customer demands. It is not sufficient to deliver successful projects; in addition, due to
limited resources, the selected projects should optimize realizing the organization’s strategic objectives. PPM is used to align projects to objectives and ensure the necessary resources are available – driving the single project to success. Selecting the right mix of projects – and completing each successfully – contributes to the organization meetings its strategic objectives.

Application of PPM determines what the right projects to complete are and is attended to build a balanced plan for the organization’s goal achievement. It includes a process of steps to ensure the right projects are selected, including clear criteria for making objective decisions; the criteria are determined based on the goals of the specific organization. The benefits to be achieved from PPM are to ensure the right mix of projects – and, only the right projects – are chosen for completion. This drives successful completion of those selected projects since the resources are available and other key criteria are balanced, contributing to the organization meeting its goals. Understanding the maturity of the organization and the maturity of the PPM process provided insights into what may be optimized.

Systems thinking is the lens to analyze the PPM process. Considering it as a system provides the opportunity to understand how the process was working, what in the process was producing less than desired results and how the PPM process can be shifted to a more desired behavior pattern. This is accomplished by restructuring the system and its leverage points.

The purpose of this case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals. The central question of this study was “What is the process that HEI leaders use to choose and maintain their slate of projects?” An instrumental case study was used to understand the current PPM process used by HEI leaders. The process was benchmarked against
both a PPM maturity model and the systems thinking framework to identify its strengths and offer recommendations for improvement.
CHAPTER 3 - METHODOLOGY

Introduction

The purpose of this case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals. The central question of this study was “What is the process that HEI leaders use to choose and maintain their slate of projects?” The intent was to examine the portfolio selection practices of HEI leaders by examining current practices.

This chapter begins with an overview of qualitative research and a presentation of instrumental case study approach and why it was selected for this study. Following, this chapter reviews the research site and participants will be connected to the study purpose. The procedures, from IRB approval through study completion are discussed. Ethical considerations, credibility and research bias are addressed. The chapter concludes with limitations of the study and conclusions that move this study to Chapter Four.

Qualitative Research Approach

Butin (2010) described the research method as the tool to support answering the research question. The two research methods include theoretical and empirical, noting that most educations research is the latter and is further broken down into quantitative, qualitative and mixed methods research (Butin, 2010). Butin (2010) noted that quantitative research focuses on numbers and answers “what”, “where” and “when” questions while qualitative research tends to stories and addresses “how” and “why” questions. Though both qualitative and quantitative have their strengths and shortcomings, Butin (2010) noted that it is more important to focus on what
method best fits the study versus focusing on the validity of each. Mixed method employs both qualitative and quantitative research which allows the researcher to collect more data with the intent to strengthen the results of the study (Butin, 2010). Creswell (2012) noted eight research designs that are common in educational research. Experimental, correlation and survey are quantitative designs; grounded theory, ethnographic and narrative research are qualitative designs and mixed methods and action research combine both quantitative and qualitative methods (Creswell, 2012).

Creswell (2012) noted that the choice between a quantitative or qualitative method has generally determined by the problem of practice, the research questions and that the choice of quantitative or qualitative research shapes the research design and its procedures. Quantitative research supports the researcher working with a trend seen in the field, to explain the occurrence of something or how one variable affects another; it requires using specific questions to generate data on variables, instruments to measure the variables and analyzes data using statistics (Creswell, 2012). Creswell (2012) suggested that researchers working to address a problem to obtain a deeper understanding without knowing the variables to explore are conducting qualitative research, using the purpose statement and research questions to learn from the study participants. Data collected from participants allows the researcher to learn through analysis of the data (Butin 2010). The methodology selected drives how the theory will be applied to tell the story. In this study, three research methods were examined as potential choices.

Post positivism is a scientific approach through a social science theoretical lens where a hypothesis is created and then proven/ not proven (Creswell 2012). This method does not align with the work of this study. To specifically prove or not prove that effective (many views of what this might be) project portfolio management would lead to (for example) meeting the mission of the institution is not only a very bold statement but too cluttered with other variables
that could not be isolated to prove or not prove this theory. Additionally, this was not the problem the study was working to solve since it does not assume there is a project portfolio management in place to create a theory around, so, this paradigm strikes out. The study work revolved around an open-ended “how” question – not a close ended it “does or it doesn’t”.

Constructivism is a collaborative process, involving participants’ views, to create meaning and knowledge and uses research methods that include interviews, focus groups, document analysis – methods that allow for as many variables to be recorded as possible (Creswell, 2012). Creswell (2012) noted that researchers work to develop a theory rather than to start with one to prove or disprove. Characteristics include multiple realities and the evolvement of ideas (Creswell, 2012). This method does align with the process noted in this study. The intent was to identify key stakeholders, gather information from them, and apply these findings to a framework to determine its maturity level.

Critical theory is all about social change where interpretations and values are challenged in order to bring about change (Creswell, 2012). Creswell (2012) explained that it is focused on eliminating societal injustices and transforming society to overcome problems of inequality for marginalized populations; working to identify and analyze power/identity struggles and then creating action for change (Creswell, 2012). The work of this study was not socially oriented – but rather is working to solve a business problem while considering culture and leadership dimensions and their effects on each other. Critical theory does not align with my defined approach.

The proposed design of this study was to understand the current state of the PPM selection process, to understand what hinders and supports this process and then to provide recommendations to improve the process. Given this method analysis, constructivism aligns with the central question of this study.
Creswell (2012) noted eight research designs that are common in educational research. Experimental, correlation and survey are quantitative designs; grounded theory, ethnographic and narrative research are qualitative designs and mixed methods and action research combine both quantitative and qualitative methods (Creswell, 2012). In exploring case studies, often used within ethnography, Creswell (2012) explained that case study researchers may or may not consider an ethnographic view; regardless, the focus can be on the individual or group level and can consider a program, event or activity, working to explore the actual case, a bounded system, in-depth. In addition to the individual or group focus, the case may be a process containing steps that are a sequence of activities (Creswell, 2012).

**Overview of Case Study Methodology**

Yazan (2015) explored the case study processes of Yin (2013), Merriam (2002) and Stake (2005) and note that Yin (2013) approached case study from a positivist perspective (one reality). Stake (2005) and Merriam (2002) applied case study from a constructivist perspective of multiple realities (Yazan, 2015). A number of case study research approaches can be applied and six are noted in the research. Yin’s (2013) work identified three methods that include descriptive, exploratory, and explanatory; within these, he also noted single, single embedded, holistic and multiple case studies (Yazan, 2015). Stake (2005) identified three methods, including instrumental, intrinsic, and collective (Baxter & Jack, 2008).

Baxter and Jack (2008) suggested that case study research may include a proposition to help limit the scope of the study and that the proposition may be built from a literature review, experience, or theories (though not used in intrinsic or exploratory holistic methods). Both quantitative (survey) and qualitative data can be used and the use of multiple data sources is recommended to enhance data credibility. Each piece of data can be viewed as part of the puzzle to understand entire phenomenon, reminding the researcher to look at data as a case and not
Yazan (2015) explained key elements that distinguish the teachings of each seminal author align to their positivist and constructivist roots. While Yin (2013) directed design to the study questions, its proposition, its analysis units, logic linking data to proposition, and criteria to conduct interpretation of findings, Stake supported flexible design/changes supported from design to research; issues are used to design research questions (two or three are recommended) and build from a data gathering plan (Yazan, 2015). The research (2015) noted that Merriam (2002) built on the works of both Yin (2013) and Stake (2005) and presented the process through literature review, conceptual framework, research problem, research questions, and sampling. At the conceptual level, Merriam (2002) focused on the development of an interview guide, the interview, and evaluating interview data and supports sense-making, simultaneous data collection and analysis, Yin (2013) encouraged a well-defined and well-structured data analysis and Stake supports observations and sense making. (Yazan, 2015).

The qualitative case study method allows the researcher to conduct a contextual study of complex phenomena, providing for the development of theory, evaluation of the phenomena and development of intervention, answering “How” and “Why” questions (Baxter & Jack, 2008), aligning with the design noted. Baxter and Jack (2008) acknowledged that case study lives in an unclear, unbounded context and does not manipulate the behavior of those in the study but rather works to consider conditions appropriate to the phenomenon, all describing key characteristics of this study. These can be used to create propositions for the qualitative study and allows the researcher to look at both the process and the experience in that process tying back to the culture conceptual framework (Baxter & Jack, 2008).

Stake (2005) noted that the researcher selects to study the case – it is not a methodology choice but rather an interest in the case and draws attention to what is to be learned; it is critical
to pay attention to the details of the activities. Stake (2005) reminded the researcher that the case is bounded to how things get done – working with the parts and purpose, recognizing that the case is a system and describes the case study to be an inquiry about the case and the resulting product of that inquiry (Stake, 2005). In selecting the case, Baxter and Jack (2008) noted that the case is the unit of analysis – for example, the individual, the program, the process or differences among organizations. It is also critical to note what is out of scope of the study; techniques for binding the case include time and place (Creswell, 2003), time and activity (Stake, 2005) and definition and context (Miles and Huberman, 1994) as noted in Baxter and Jack (2008).

Baxter and Jack (2008) discussed different types of case studies and recognized that Yin (2013) categories case studies as explanatory, exploratory, or descriptive and distinguishes between single, holistic and multi-case studies while Stake (2005) recognized case studies as intrinsic, instrumental or collective. Stake (2005) broke case study into three methods – with an intrinsic case study, the study is working to better understand the particular case and not the phenomenon. Stake (2005) explained that the instrumental case study used the case to gain insights into issues and re-examine and re-calibrate generalizations. The specific case is not the focus but rather the understanding that studying the case offers and is used to promote understanding of the interest (Stake, 2005). Jack and Baxter (2008) explained that the instrumental case study is used to achieve a result beyond understanding the phenomena and provide understanding into an issue to support the researcher in tracking an external interest. The third is the multiple case study – an instrumental case study that includes several cases to better understand and theorize (Stake, 2005).

Yin (2013) noted that a case study approach is relevant when exploring “how” or “why” questions, when the study is based on a current phenomenon and the researcher has little or no effect on the behavior of the event being studied. Yin (2013) also acknowledged the use of the
case study in studying organizational processes. In Baxter and Jack’s (2008) review of Yin’s (2013) methodology, it was noted that case study is an approach valuable to develop theory, analyze programs and examine interventions because of its flexibility and rigor. Lastly, Yazan (2015) acknowledged that case study informs professional practice. These insights align with the intent of the study to analyze how HEI leaders select projects within their portfolios and to conclude with recommendations to improve on the process.

The proposed design of this study was to understand the current state of the PPM selection process, to understand what hinders and supports this process and then to recommend good practices to improve on the process. The intent of this study was to explore and then develop ideas for action. Baxter and Jack (2008) noted that case study is an approach valuable to “develop theory, evaluate programs and evaluate interventions because of its flexibility and rigor.” (pg. 544) as well as advise professional practice. Yazan (2015) acknowledged that case study informs professional practice – allowing the researcher to develop theory, evaluate programs and develop interventions. Both of these insights align with the intent of the study to analyze how faculty leads select projects within their portfolios and to conclude this with recommendations to improve on the process. The central question of this study was “What is the process that HEI leaders use to choose and maintain their slate of projects?” The instrumental case study method was chosen because the proposed design of this study was to understand how project selection is done, to understand what hindered and supported this process and then to recommend good practices to improve on the process.

**Research process: Data Collection**

In designing the study, it was critical to decide what the study scope was and was not (Baxter & Jack, 2008) and then to create a case study design that best supported the study. Yin (2011) noted the importance to use multiple sources to gather information - case study data
sources includes documentation, archival records, interviews, direct observation, participant-observation and physical artifacts noting that each has strengths and weaknesses to consider.

Interviews are an important source of data and should be viewed these as guided conversations. Jack and Baxter (2008) noted that each source of data provides pieces to the puzzle. Though there is no clear cut off point for data, the researcher needs to ensure confirmatory evidence (from 2 or more sources) and evidence must consider rival hypotheses/ explanations (Yin, 2011). Yin (2011) advocated for a pilot study (Yazan, 2015) in order to refine the data collection plans, considering both the content of the data and the protocol to be used.

In reviewed studies and dissertations, interviews and detailed document reviews were the two most frequently used methods for data collection. Purposeful sampling was recognized as key for interviews (Fletcher, Bonell, Sorhaindo, & Strange, 2009), and interviews crossed roles, for example, including executives, project managers, team members and customers, to gather insightful data. This same study noted non-participant observation as a method. An observation protocol was developed to support this activity (Melo, Cruzes, Kon & Conradi, 2013). One study used quantitative data from an internal control system collected over nine years (Lappe, M., & Spang, K. 2014). Another study disclosed the use of a pilot study to check the applicability of the study design (Daneva, Van Der Veen, Amrit, Ghaisas, Sikkel, Kumar & Wieringa, 2013). These insights were all considered in the design of this study.

**Research process: Data Analysis**

The seminal authors all recognized the criticality of organizing data since so much is collected during case data collection. Baxter and Jack (2008) reinforced the use of a data base. Yin (2011) described six analysis techniques – pattern matching, linking data to propositions, explanation building, time-series analysis, logic models and cross-case synthesis while Stake identified two, including categorical aggregation and direct interpretation (Baxter and Jack,
Data collection and analysis often occur concurrently in case study research (Stake, 2005).

In reviewed studies and dissertations, a number of techniques were used to analyze data. Overall, the researchers included the detail from their interviews, shared as a participant narrative. The researchers examined the data by transcribing and coding the data to lead to findings. One study used a thematic analysis to recognize patterns against a qualitative framework by breaking down, exploring and integrating the data (Melo et al., 2013). These recommendations were considered in this study.

**Research Process: Presenting the Findings**

Baxter and Jack (2008) identified a number of approaches employed by case study researchers to display data and represent the stories of the participants. Stake (2005) supported observations and sense-making while Merriam (2002) also supported sense-making, simultaneous data collection and analysis (Yazan, 2015). Each piece of data is part of the puzzle to understand entire phenomenon (Baxter & Jack, 2008). The Chain of Evidence is an effective way to explain the process of the case study; in particular, the traceability of the different components has allowed the researcher to understand the study backwards (Yin, 2011). In reviewed studies and dissertations, findings were presented in a practitioner-based way. Frameworks were created or modified to support future efforts of managing the target phenomenon (Melo et al., 2013). Other findings were presented as lessons learned to consider (Vlaanderen, Jansen, Brinkkemper, & Jaspers, 2011), a validation of hypotheses (Lappe & Spang, 2014) or the creation of a hypotheses (Fletcher et al., 2009). These considerations were employed in the design of this study.
Participants and Access

The purpose of this instrumental case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals. The intent was to employ a case study to examine the portfolio selection practices of leaders within two universities. Seven higher education leaders were interviewed to provide context into PPM selection practices employed within HEIs. The selected individuals sat at the intersection of people coming to them with ideas for many projects; these individuals were able to tell the story of how initiatives are selected, who know the strategic intent of their organization and need to deal with optimizing decisions. These HEI leaders have different titles and include faculty directors and campus leaders at dean levels. Two universities were used to provide anonymity and add additional comparative insights.

Case study research integrates the use of six sources of evidence (Yin, 2011). Table 1 shows how these sources were included in the study. This data was used to examine how leaders within the campus identify, select and manage their collection of projects. The evidence noted is project-centric.

<table>
<thead>
<tr>
<th>Documentation</th>
<th>Archival Records</th>
<th>Interviews (Questions)</th>
<th>Direct Observations</th>
<th>Participant Observations</th>
<th>Physical Artifacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do HEI leaders within a university identify, select and manage their collection of projects?</td>
<td>• Publicly available information (i.e. University Websites)</td>
<td>• N/A</td>
<td>• See interview protocol</td>
<td>• Field Notes</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Table 1: Six Sources of Evidence

Procedures

Phase 0 - IRB Approval.

Phase 1 – Interview Guide

An interview protocol (partial components - Appendix A) was developed to guide the conversation in exploring the HEI leaders’ experience in selecting and authorizing projects within the regional campus. The protocol included main questions with consideration for both follow-up questions and prompts. The researcher reflected and created field notes on insights noted during the interview.

Phase 2 – Pilot

The pilot consisted of a pilot interview with one non-study participant. The purpose of this was to test the interview protocol and use information from the interview to confirm study participants. The interview protocol was validated and insights led to the identification of study participants by role only.

Phase 3- Data Collection

This step consisted of publicly available document reviews to gather information about the organizational mission, internal processes and documentation required in the project selection process. This phase included the review of the websites of both organizations. Interviews were conducted by video conference and were recorded. A semi-structured interview process was used to collect information on participants’ backgrounds and experiences, along with gathering data specifically related to the research questions. At the onset of the interview, an overview of the study and interview protocol, including confidentiality expectations, was shared with the interviewee. At the conclusion of the interview, the participant was asked if s/he had any
questions or concerns. The interview was transcribed by the rev.com, reviewed by the researcher and a copy sent to the interviewee for validation immediately following the interview. A second opportunity to follow-up on the interview results was not needed based on the comprehensive data collected. All data per the Six Sources of Evidence Table was reviewed.

**Phase 4 – Data Analysis**

During this step, data was transcribed by rev.com and reviewed by the researcher. Since a transcriber was used, the researcher checked each section for accuracy following the transcription process. The transcription was shared with the interviewee within twenty-four hours of its receipt to validate credibility. Corrections were requested and the transcriptions were updated as requested. The data has been stored on a password protected Dropbox account.

Applying Creswell’s (2012) methodology, the researcher reviewed the transcript to ensure familiarity with the content. This reading was followed with a second review to organically determine a relevant coding structure. This led to the identification of process steps for selecting projects to organize the data. The transcript was re-read and coded against these categories. Creswell’s (2012) advice to start with a lean list of codes (5-6) and add (up to 25 – 30) was followed. These codes were organized into two conceptual frameworks – systems thinking and project portfolio maturity model. Reflective memoing used during the coding process was reviewed to capture the researcher’s thoughts that may impact the coding process.

Data was coded twice – by hand and through the use of NVivo. Data collected was analyzed both inductively and deductively. These were compared and the coding tracked significantly. Coding was checked by a PhD research scientist. Researcher analysis included examining the data for patterns, trends, best practices and issues. Themes were identified and data was triangulated to ensure trustworthiness. From the identified themes, findings and recommendations were prescribed.
Phase 5 – Findings

This step included the development of the dissertation report. Findings were presented from two perspectives; one around the research process employed and the other around the data collected, what it suggests and recommendations based on these findings. Findings included, relative to the case studies, the systems view of the project portfolio process, its level of maturity, the gap noted and recommendations to close the gap.

Ethical Considerations

The project was approved through the IRB process and the guidelines strictly enforced by the researcher. Pseudonyms were used to name study participants and campus locations. The master list was stored in a password protected Dropbox account. All collected data was stored in this Dropbox account. In addition, this personal computer was password protected. Any handwritten notes or collected documents were locked in a filing cabinet at the researcher’s home. The researcher did not discuss the research at work or in any public place without the consent of the individuals that have provided the data. Anonymity was maintained by labeling all participants in the study as higher education leaders versus their specific leader role at the university. All participants had option to opt out of the study at any time and have their collected data deleted and not included in the study analysis and findings. All attempts were made by the researcher to ensure sensitive data went through the due diligence process as noted in the IRB approval.

Participants were informed about the research process and the intent of what the collected data will be used for. Once the individual data was collected, it was held in confidence and no one but the researcher had access to it, beyond the research scientist who checked the coding, as outlined above. Data analysis used appropriate techniques and results were not fabricated or
falsified. Triangulation, member checking and peer review, as well as the use of multiple data sources, was used to ensure this work is accurate and honest. The positionality statement below supported the research being non-biased.

**Credibility**

Roberts (2010) noted that research should consider validity to the study. This trustworthiness, or credibility, provides reader confidence in the data analysis and can be done through triangulation, member checks and interrater reliability (Roberts, 2010). Baxter and Jack (2008) noted a number of strategies to ensure the trustworthiness of the study. Their study (2008) noted this begins with a clearly written research question, a design that matches the question, purposeful sampling that aligns with the study are followed, data are methodically and consistently collected and managed and data are properly analyzed. Triangulation is another technique to support credibility, requiring the researched to view and explore the phenomena from multiple viewpoints (Baxter and Jack, 2008). Baxter and Jack (2008) explained that this allows for confirmation of findings.

Butin (2010) recommended the use of multiple data sources (i.e. document analysis, interviews, surveys) to ensure the analysis and study conclusions are valid. It is not necessary the data sources are consistent – conflict is revealing that different data sources allow different perspectives; a powerful finding for the analysis is how and why these differences are in play (Butin, 2010). Roberts (2010) shared the review of multiple data sources to validate statements made in interviews. Creswell (2012) explained that data triangulation can be done by authenticating data for different study participants, by checking different types of data or from different collection methods, working to ensure the validity of the study results.

For this study, several proactive actions were integrated into the study to preserve trustworthiness. Multiple data sources, as noted in the six sources of evidence table above, were
included in the study. These were analyzed for consistency or the lack thereof in this study. As noted, multiple participants in the same site were interviewed and the data verified for consistency. Study participants reviewed their own interview transcript to ensure it was trustworthy.

**Potential Research Bias**

Individuals form their own context for positionality or subjectivity based on socially constructed identifiers; include gender, race, and class among others (Parsons, 2008). Though these personal attachments promote passion for conducting effective research, they can also introduce bias into the work. It has been recognized that positionality exists and cannot be completely eliminated; it must, however, be controlled. The first step in controlling positionality was to identify these personal views (Machi & McEvoy, 2012). In this statement, I identified my personal triggers, their affirmations and threats for this particular study. I concluded with an examination of how to control these to ensure my work is minimally affected by my personal views.

**Education**

I have an undergraduate degree in engineering and an MBA. I am working to complete my EdD in Organizational Leadership. The engineering side of me enjoys breaking things down, analyzing for root causes and working to find an optimal solution. The business side of me works to ensure “value added” results and focuses on the people issues. Organizational development has been one of my interests for over thirty-two years and is the focus for my EdD. From an affirming perspective, I work to understand the problem, identify alternatives and objectively collaborate and implement solutions. From a threat perspective, when others simply want to implement something so that the “It’s done” box can be checked, it pushes me to continue to dig in when instead I need to understand if something else is driving this.
As an adult learner, my background and work experience are practitioner based. The scholarship piece of my learning is one I struggle with. From an affirming side, I have the depth and breadth of knowledge to apply project management in a value-added way. On the threat side, it is important to not rely totally on the practitioner piece but to ensure the scholarship perspective is considered as well.

**Personal Attributes**

I am the single mother of three (now adult) daughters. As a result of being a mother for thirty years, my patience and listening skills are well developed. I have learned to consider alternatives and work through to a decision. My personal style is to be inclusive and accepting. I enjoy the friendships of both male and female colleagues including differing races and sexual orientations. I avoid conflict at all costs and care about helping others. I work hard to understand, to find connections, and create alternatives. I am not a directing individual and prefer to lead passively. My style is to sell not tell. These personal attributes should allow my research to be collaborative; however, I also need to be sure to examine the dimensions these characteristics may add to my analysis and results and ensure any affects are not excluded.

I grew up in the mid-Atlantic (Delaware), lived in Indiana for 7 years, in Boston for 4 years and resided in New Hampshire (Seacoast area) for 25 years. I relocated to Sarasota, Florida five years ago. I am aware that over 30 years of my professional life occurred while living in the Northeast. This may lend certain cultural biases, based on location, to my work that I am not aware of– and may contribute to my missing certain parameters that should be considered. The Northeast tends to be fast paced, high energy, and intellectual. This has influenced the consulting work that I do – I am focused, thorough, search for best practices to guide my work and target to complete it efficiently, effectively and in a time-sensitive way. When working with individuals who do not share these characteristics, it is frustrating and easy
for me to assume that what I am doing is not important to them. When working in different geographic regions, it would be important to understand the key culture characteristics and integrate these into my research protocol.

**Project Management Experience**

Over the forty years that I have worked as a project management practitioner (coaching, consulting, designing and delivering PM workshops, facilitating working meetings), I have watched organizations try to improve project delivery through better project management and sometimes have fallen short. The failure is often blamed on a tool, a process, or not enough time. Rather, I believe the failure point is that the “change” was not well thought out – to not only prepare the organization for the change, but also to determine just the right amount of project management that will add value. Often, I feel leaders don’t support their people beyond “Just get ‘er done.” It seems some think that training/project management are the silver bullets and that if their folks just take a class, all will come in on time, within budget, and of perfect quality and those leaders can then neglect their role in the situation.

My privilege of experience – in spite of being affirming in the work to be done, can be a threat. Though the participants in my study are educationally my seniors – all have terminal degrees and organizationally are my superiors – deans and faculty leads – my breadth and depth of project management experience exceeds theirs. What they don’t currently do is what I know best - I will need to take care to consider that lack of understanding in my work and how to ensure their perspectives are considered. I strongly believe in the project management process (my colleagues call me a “project management geek”) and the benefits it can provide/ the challenges it can help overcome. The project management tools I work with are field tested and applied by many organizations to drive successful project results. Occasionally, during a training workshop, a participant will share “These are all good *theories* but will not work in the
real world.” My experience will allow me to find relevant success stories/ lessons learned. The threat is to consider that project management tools and techniques cannot solve all issues within an organization – though I may try to use this lens, it is not possible. Clarifying the scope of what can and cannot be done will be key. This potential resistance by involved subjects will also require me to manage my bias to those who don’t embrace the good that project management brings, perhaps by conducting a stakeholder analysis to understand what drives each of them and integrating an organizational change model to guide the work.

The majority of my work experience is with for-profit organizations. I have chosen to focus my research on non-profits. Though I have some knowledge in the non-profit world, I am not as familiar with the culture and other key attributes as with for-profit entities. A danger is that I may bias my non-profit understanding with for-profit realities.

Considering sources of information for my study, in particular, other author’s work, my experience may affirm the credentials of the other. My concern is that I may dispute their work based on what I might perceive as limited project management experience – though their scholarly credentials may be excellent. Because I do have significant experience in project management, another action is to approach the research with the goal to look for new ideas and thoughts – instead of trying to confirm that the old rehashed problems are still at large.

**Experience as Faculty Member**

In Fall 2015, I accepted a full-time faculty role with a University I have taught at part-time for the previous seven years. This has required me to scale back my consulting efforts and engage with the University through teaching, service and scholarship. I am often engaged in projects for the University in different capacities – as the project manager, as a team member, as a subject matter expert and as a mentor. Briscoe (Briscoe, 2005) suggests that “the other” should be included in the research; my positionality (particularly education, gender, and work
experience) provides me with much of the non-profit project manager identity within the university context.

On the ground level, it seems that some decisions regarding projects and their directions are not strategically defined. It is this deficiency that has led to the focus for my study. From an affirming perspective, I see this as an opportunity to provide service to my university in the project management processes that could be used. However, as a threat, how does the other perceive me? I am an older female working in a predominantly male organization. They have worked for this university in their roles for five plus years. What biases might they conclude about me that I should be aware of as I interview, pilot, and recommend a project portfolio process. From an affirming side, I am comfortable as the minority sex in a work situation – I am often the only female working on a consulting project. The threat is that I may question my credibility based on how these men respond to my questions, insights and recommendations. I also need to be aware of how the perceptions of these men towards me might affect their responses and to ensure I am working to understand and not jump to false conclusions around what their true intent might be.

Another bias to be aware of is my role as an insider to tone of the organizations I have chosen to study. The affirmation is that I understand the organization. The threat is also that I understand the organization and feel that the research I am investigating can solve a problem the organization is facing. My bias is that to not embrace the change prevents the organization in optimizing project and service delivery. I need to be aware of and accept that my action research may indicate that the processes currently used are sufficient in this environment.

**Experience as team member**

Why is it that project management practices are not used? At Inland Steel, I first worked as a project engineer. The PM tools were the glue that held the project together. From a
communication perspective, it allowed key stakeholders to know what was going on and what was needed from them. It provided key information to manage issues, risks and changes. The tools allowed me to take what was in my head (and heart) and share it objectively with other key project personnel. When PM tools are not used, it seems that the “non-user” project manager is not doing his/her job or is negligent/lazy. Project management is not rocket science – the tools are straightforward, flexible, and scalable. My experience as a non-profit volunteer / serving on project teams with a lack of project management discipline led to thoughts along the lines of “She seems clueless as to how to run a project” to “Don’t they care about the volunteers?” From a threat perspective, it will be important to realize that this may be based on a lack of knowledge rather than not wanting to improve the operations of the project. I also need to be cognizant that this individual may have the knowledge and feel that using project management practices won’t add value to the work – that his or her application is what seems appropriate. This ties back to the art part of leadership and project management; there is no one best way to manage a project. The non-use could also be tied to the lack of perceived time to apply project management. A bias that I need to be aware of is that I believe there is always a benefit to integrating value added project management – that there is an efficiency gained that will overcome the time invested. Not all may share this belief.

**Conclusion**

In research, it is important NOT to begin with the end in mind but rather to pay attention to what is suggested. Similarly, it is key to not bias the findings of the research based on the perceptions of the researcher. An understanding of what may distort my own research and to create an action plan to control these positionalities will enable me to deliver objective and rational results. These research outcomes provide the framework for implementing “just
enough” project management within non-profits to enable them to increase project capacity – hoping to do more with less.

**Limitations**

Roberts (2010) recognized that limitations are study features that negatively impact results and generalizations of the study. Defined as elements of the study that the researcher cannot control, examples include sample size, study duration, and methodology constraints (Roberts, 2010).

This selection of these two universities was done purposefully to limit the scope of the study and to provide an independent context for the researcher. The conceptual framework, a blend of systems thinking and the project portfolio management maturity model, limited the research from other potential analyses and conclusions. The duration of this study did not coincide with the funding cycle nor was it long enough to include the strategic results gained from the projects selected. Hence, this study focused on the process of the project portfolio creation against a best practice maturity model.

**Conclusion**

The shorter-term implications of this work were to allow higher education leaders to understand the process used to identify, select and manager their current portfolio of projects, the value of their current project portfolio management process, what contributes to its success and what impedes it realizing its complete value. From this, it was hoped that these leaders can identify small changes that will create a more strategically balanced portfolio of projects. It was also intended that this awareness will allow other stakeholders to understand the reasons for the projects being undertaken; this should minimize some level of resistance to change. It was also suggested that the results will encourage more research and translation to application, in the non-profit, particularly higher education, organizations. As the non-profit environment becomes
more complex, project management is a set of tools to help leverage the capacity by first selecting only the right projects and then completing them in the right way.

The case study method provided an effective balance between scholarly and practitioner-based work. Data collection was considered from several sources to ensure validity and completeness of the data. Themes and findings were reported in a way that they can be applied by those interested in the phenomenon. Case study method allowed research to be grounded in a context and provided an outcome that may be meaningful in application.

The proposed design of this study was to understand the current state of this selection process, to understand what hinders and supports this process and then to recommend good practices to improve on the process. The purpose of this case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals.
CHAPTER 4 – RESEARCH FINDINGS

Introduction

The purpose of this instrumental case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals. The central question of this study was “What is the process that HEI leaders use to choose and maintain their slate of projects?” The intent was to examine the portfolio selection practices of HEI leaders by examining what the current practice, what the results are on the performance of the organization and a framework to provide recommendations to optimize selection. Seven participants, all mid-level leaders in their HEI were invited to participate. All seven participants agreed to take part in the study.

This chapter is divided into four sections. The first section is comprised of short vignettes that overviews the selection process employed by each participant. The second section reports on the codes and clusters that emerged from the analysis. The third section explains emerging themes from the analysis. The fourth section reports on the data analysis in context of the research question.

Participant Vignettes

Each interview was analyzed and condensed to a concise summary of the process used to identify, prioritize and manage the slate of projects initiated by their organization. The following recaps the information shared in the interviews.
Jack

This participant has a longer-term vision in how he focuses on which projects to do – he uses the ten-year strategic plan to look at how to roll out projects over the timeframe along with the mission of his own department and regulatory compliance constraints. Jack uses the structure of the business case to justify projects and has good knowledge of the different approval processes for different types of projects. He uses opportunity cost and the resources needed as decision criteria in process. He finds that he optimizes what gets done by considering the skill of resources available and how projects align with that instead of deciding what projects to do and then looking for the resources to complete them. He notes that his university has an ad-hoc decision framework for building the portfolio based on the academic program. In his program he looks one year out, three years out, five years out and how projects will iterate over time to meet the organizations goals. He works to evolve projects organically based on resources with capacity and what their skills are. Overall, he sees room for more clarity on translating vision to projects while at the same time guiding the organization to be more comfortable with ambiguity.

Cary

This participant describes a clear process for how he identifies and selects projects, tied to both the leadership strategy of the organization and the organization’s mission - to educate students effectively - and uses both of these to decide if a project makes sense. He considers buy-in necessary to move a project forward as well as the resources and dollars required. He uses this structure to create his collection of projects - along with market research, what part of the solution is already having in place and the amount of governance necessary. The challenge of having good data to make these decisions and monitor progress is an area to explore as well as more collaboration across programs.
**Ursa**

Based on his responsibilities and program, specific goals have been set to drive direction. He makes sure all projects fit in his strategies. To balance, he uses faculty workload to know what projects fit (theoretically) and if the project load is greater that available capacity, he looks for re-adjusting workload or volunteered overtime. He translates organizational strategy to program strategy and tactics to drive what the workload for each faculty member should be. He believes this process works to drive what projects his organization should do. He feels his projects are heading the organization in the right direction but notes that it is too early to say if they are contributing to the organization’s need to meet its goal. He will have a better assessment of this in two to three years based on key performance indices (KPI's) to be established. The participant describes a clear path for how his projects are identified, selected and prioritized. Each project is tied to vision of his organization and he is quick to move projects off the plate if he no longer sees the value/ purpose of the project. As for if the value will be realized, he recognizes this is a longer-term measure.

**Lara**

Lara defines herself as a self-starter and works with different internal and external bodies to identify projects and then works to align with university goals as well as her own passion projects/ noted weak points/ results of a critical self-reflection of her program. She uses different factors to select projects and balances the ones to complete around the following criteria: Will it contribute to goals, is it cost-effective, will the Deans buy in, do we have the people to do it and does it benefit students (noting that the last criteria may trump all others). She sees opportunity for more structure – including data and decision-making rubrics. Bottom line, she notes the results of her projects/ portfolio success if these have a positive impact on the students – by
increasing retention, enrollments, and graduation rates. She would like to see a more in-depth strategy to help guide identification and selection of projects.

Pam

In the past, the process followed was ad hoc and led to poor results and frustrated participants. A new structured approach is being implemented this year. She works closely with her leadership to identify and prioritize projects based on her organization’s goals – her leadership team will then work with other parts of university to prioritize since the work is being completed in a matrixed manner. Strategy sessions have been held within her organization to translate the organization’s goals to the initiatives/projects to do. A group discussion will be held to vet these as a composite team based on pre-established criteria and also considering the capacity of her organization. Key will be ongoing alignment with mission and goals. KPI's will be developed for each initiative to track and focus on the quality of the projects selected vs. the quantity. Collaboration is key to address the complex organizational structure her group works with. This year, a breakthrough is realizing that all projects considered won't be done. Pam feels she has a very clear, collaborative process for how projects are selected this year and an awareness with her leadership that not all suggested projects will be done - that some are "must do's" and the rest will be based on capacity - even if her group is only doing part of one of these "should/could" do projects based on capacity. She sees her group's mission to support the student experience.

Sam

Sam feels that the process is less structured, and he wishes the process would align more typically to good practices in how projects are selected in industry. He works to select projects based on strategies and the goals he sees and creates business cases to show value. The data necessary to do this effectively is not always available to support his efforts and he often has to
default to his leaders to decide which projects to do based on funding by negotiating/ swaying decisions on projects to do. He offers this includes a lot of give and take and often taking on more immediate than longer term efforts - and goes through the process one project at a time instead of offering the recommended portfolio for consideration. He suggests there is much juggling and competing to decide which projects to do. He worries the benefits to be achieved are so far out. Due to the governance process, it may take a year to implement a project and then a year or two to see results. He feels he has less authority than desired as to what projects can be done in his area and that the highest value projects are often replaced with quicker hit efforts. Sam also laments that information is not communicated in a timely way to make the best decisions. He continues to negotiate for those projects, but decisions are made at a higher level across a broader spectrum of projects.

Lillian

As a middle manager, Lillian can impact projects within her program while also completing projects that are driven from the leadership level based on university goals/ outcomes. She feels leaders are unclear on the capacity of groups to complete these projects and would like to initiate a project to better define this process. She uses her own knowledge of her program to determine what needs to be done in her area and looks for collaboration with others at her university. She works to balance student outcomes, the identified gaps and capacity along with deadlines and the potential to collaborate with other departments to determine what can be done. She finds the need to push back on leader-driven projects to have the capacity to do projects she sees as necessary for her program. Lillian finds the process a balancing act between the initiatives pushed down to her from her leaders as well as what she feels needs to be done to her program. She feels her organization would benefit from a more defined process to consider what projects to do and how to balance/ authorize that. Often, she is pushing back to her
leadership to balance based on her own capacity. Her own priority is anything that provides value to the student.

**Codes and Clusters**

The researcher complied information from all three sources: publicly available documents, interview transcripts, and field notes/ analytic memos. Data was coded once by hand and once through NVivo. Results were compared and found to be consistent. Data was then managed through NVivo. Through the analysis of this content, forty unique codes originally emerged. Codes were then organized into eight clusters. The following are the cluster definitions.

**Strategy**

This cluster notes comments on the organization’s strategy, how it is defined and presented to the organization. There is one code in this cluster.

**Identify/ Categorize**

This cluster addresses how projects are identified and includes both the sources and processes. There are four codes in this cluster.

**Evaluation/ Selection**

This cluster follows the decision process to determine if a project is worthy and has value. It provides insights into if a singular project should be considered for inclusion in the portfolio. There are four codes in this cluster.
Prioritize/ Balance

This cluster focuses on determining what the portfolio of projects is. Given the worthy projects, which ones should be done, understanding what the criteria for prioritizing and balancing the portfolio are. There are five codes in this cluster.

Portfolio Authorization

This cluster examines the approval process for the portfolio and includes the levels of approval. There are two codes in this cluster.

Portfolio Oversight

This cluster discusses how the portfolio is managed over the course of time once approved. There are two codes in this cluster.

Process – Supporting Factors and Challenges

This cluster explores the challenges faced in creating the portfolio of projects as well as the supporting factors in creating the portfolio. There are 14 codes in this cluster.

PPM Results

This cluster examines how it is known if the right projects were completed. There are eight codes in this cluster.

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Cluster Description</th>
<th>Codes in Cluster -</th>
</tr>
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<tbody>
<tr>
<td>Strategy</td>
<td></td>
<td>Strategy defined</td>
</tr>
<tr>
<td>Identify/ Categorize</td>
<td>How are projects identified? What is the process and sources?</td>
<td>Source of Projects</td>
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<tr>
<td></td>
<td></td>
<td>Inventory</td>
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<td></td>
<td></td>
<td>Sample Projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identification of Initiatives</td>
</tr>
<tr>
<td>Evaluation/Selection</td>
<td>How is it decided if a project is worthy - that it should be</td>
<td>Selection Criteria</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Select Projects for Inclusion</td>
</tr>
<tr>
<td>Category</td>
<td>Question</td>
<td>Cluster/Code</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>Prioritization/ Balance</td>
<td>How is it decided what projects can be done?</td>
<td>Constraints, Balance, Capacity, Optimization, Alignment</td>
</tr>
<tr>
<td>Portfolio Authorization</td>
<td>What is the approval process for the portfolio?</td>
<td>Sponsorship, Authorize</td>
</tr>
<tr>
<td>Portfolio Oversight</td>
<td>Once the portfolio is approved, how are projects moved in and out of it?</td>
<td>Measurements</td>
</tr>
<tr>
<td>Process – Challenges and Supporting Factors</td>
<td>What challenges do you face in creating your portfolio of projects?</td>
<td>Cross Department/silos, Culture, Barriers, Governance, Inefficiency/efficiency, Opportunities for Improvement/Future, Challenges in Selecting Portfolio, Opportunities for Improvement, Governance</td>
</tr>
<tr>
<td></td>
<td>What supports you in how you create your portfolio of projects?</td>
<td>Leadership, Empowerment, Culture, Supportive factors in selecting portfolio, Collaborate</td>
</tr>
<tr>
<td>Results PPM</td>
<td>How is it known if the right projects were completed?</td>
<td>KPI's, Measurements, Feedback from stakeholders, Right Projects?, Results - PPM, Benefits Realization, How do you know - optimized portfolio, Strategic Alignment</td>
</tr>
</tbody>
</table>

Table 2: Clusters and Codes
Summary

These clusters were analyzed for themes that were visible across questions and participants. From this analysis, nine themes emerged. These themes were representative of what the researcher determined in the data analysis and was informed from the rounds of publicly available documentation, interviews, field notes and the researcher’s journal.

Emerging Themes

The researcher took all three sources: publicly available documents, interviews, and analytical memos/journals and organized the data along the process steps in the PPM process (See Figure 1, page 105). The responses, as structured in the data analysis were compared, and nine themes were identified. There were similar perspectives shared within the seven interviews along these themes. These commonalities are noted below as well as the nuances within them.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Jack</th>
<th>Cary</th>
<th>Ursa</th>
<th>Lara</th>
<th>Pam</th>
<th>Sam</th>
<th>Lillian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambiguity in Translating Goals to Projects</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Segmented Decision-Making</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
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<td></td>
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<tr>
<td>Insufficient Data to Make Portfolio Decisions</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
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<tr>
<td>Conflicting Priorities between Top Leaders and Interviewees</td>
<td></td>
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<tr>
<td>Sense of Missed-Collaboration Opportunities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
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<td></td>
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<tr>
<td>Sense of Disconnection – Immediate Leader Support vs. Organizational Support</td>
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<td>x</td>
<td>x</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Lack of Visibility of Division Wide Portfolio/Overall System over capacity</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>Empowerment – Fact or Fiction?</td>
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<td>Overall Concern that Portfolio not Optimized</td>
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Table 3: Theme Triangulation
Theme #1 - Ambiguity in Translating Goals to Projects

An examination of the web sites of both schools indicated that the goals of both organizations are aspirational. Examples included “learning tailored by advancements in technology” and “continue to offer degrees focused in high growth areas”. All participants recognized that their university has university-level strategic goals, and these become one source for the identification of projects to complete. Their own departments/colleges have identified strategies to achieve as well and each participant has recognized that they are aware of things that need to be completed in their own programs to address student needs. In some cases, their leadership may not see these as important. One participant noted that though the goals are available to her, she feels that they are not communicated well or often enough.

Lara acknowledged that enrollments are a considerable factor. Sam noted that program growth, as number one, retention is the second initiative, and accreditation is the third. Ursa noted the need expressed by industry to have an explicit number of analysts, IT professionals, or whatever. None of these are listed on the University goals. Ursa revealed that he was able to develop his goals and the tactics to get to the end quite independently, but of course of the university also has its strategic goals to be addressed.

One participant noted that she tries to think about how those strategies translate into her program, her alumni network, and her students. Another participant explained that she doesn’t make university decisions per se on how the goals affect the school. She only can impact her program, and the projects within her program, which she notes is very little compared to the overall big picture. Pam suggested that top leadership comes up with ideas for initiatives and then works with her to identify which programs make sense.

Jack concluded with the need for more clarity around the strategic direction of the organization as a whole. And then, for more tangible expression of how that is measured
tactically within the organization. He shared that often times strategic people are saying “But we’ve told you the strategy, but we’ve told you the strategy” and more tactical people are saying “I don’t understand how that strategy filters down into the daily life of what we’re doing.” The stronger connection between the strategic direction and the tactical work that must be done to accomplish effective results is missing.

**Theme #2 - Segmented Decision-Making**

The general tone from the interviews indicated that participants feel like they operate alone in their organizational silo to determine what projects make sense. The process is further complicated due to a lack of clear criteria for decision-making. This is evidence by Lara who noted that in her organization there are not peers that she can sit and generate ideas with. Pam noted that one change made in her selection process this year is to form teams to generate project ideas and to date she felt this change is showing good results.

Lara shared that her criteria for selection is generally limited to goal criteria and resource capacity and noted there are other factors that should go into it. She reflected that it would be beneficial to have some sort of rubric to confirm that, it aligns with the strategic plan of the university, it aligns with our college strategic plan, there’s buy-in from the external stakeholders, there’s buy-in from internal stakeholders, and has a positive impact on students. “That, yes, this is a green idea versus, this is a yellow, or this is a red idea, and then to consider time tracking management and investment towards goals.” Ursa acknowledged that the interview included very good questions that made him re-consider his thought process for selecting projects.

**Theme #3 - Insufficient Data to Make Portfolio Decisions**

Key to portfolio decision making is data to determine if a project has value for placement in the portfolio and to decide if it should remain there through its execution. The general tone is that data is not as readily available as would be preferred for decision making and often lags in
time to support effective decision-making. Cary shared that one has to rely on data, that is, from his perspective, a bigger challenge; historically those metrics have not been available nor has there been much transparency. He believes that this is moving in a direction where leaders will be in a position to make better judgments. Lara provided that data is supportive and helpful in decision-making and that on the flip side, the lack of data is what makes the decision-making process very difficult.

Jack stated that he tracks against those anticipated benefits as to whether or not he believes that the project will still deliver those benefits to the organization. He acknowledged that with many projects it won’t be known until towards the end when significant costs have already consumed by that initiative. Jack shared that it is not always possible to make these decisions on quantitative data. Though one may aspire to make decisions based on data – for example, based on return or metrics that have been set, there are substantive, qualitative, emotional reasons that projects may continue to remain in the portfolio when they should be taken out of the portfolio.

Lillian noted that the delay between implementation and benefit complicates having the data to know if the right projects for the organization’s goals to be realized were selected. She relied on the gap analysis to select the project but then must wait until the result is initiated to see if it’s doing well; it is likely that impact maybe a year or two later down the line. Sam shared that essentially, any changes made now to a program won’t see the light of day for about a year and a half and the results even beyond that. Even though analytical tools are available, he felt that data is almost like a term behind to know how results track against plan.

**Theme #4 - Conflicting Priorities between Top Leaders and Interviewees**

There is a desire from the participants to complete projects that may not be the highest priority of the leadership team and to de-prioritize projects that may be of higher priority of the
leadership team. Lara noted that building community relationships is important to her and she spent time developing a project that was not a strategic goal of her organization though no one really wanted her spending time doing that. Lillian noted that she would like to initiate innovation projects to invest more in technology to bring more of a student experience into the online classroom as opposed to what currently exists.

Lara noted that though she should make all decisions based on alignment with the strategic plan and goals, she also considers, based on her own insights, what will be most beneficial to the students. She continued that typically things that are important to her have had support from the people who are higher up but if there hasn’t been clear support for one of her passion projects, she will still find a way to spend time doing it. This is often her own personal time. Lara provided that things are constantly moving in and out of her slate of projects; there might be commitments from upper management that have to be prioritized before those she has selected but she reflected that has to be temporary. She always keeps her own priority projects running in that background instead of moving them out of the portfolio, recognizing that she does have a commitment to them.

Lillian noted there seemed to be a perception that capacity is given to certain departments or certain schools, not based on any type of formula or based on any type of standard or outcomes or metrics. As a future effort, she would like to have her leadership team consider an initiative to look at capacity. Lillian shared a current frustration with top-down driven projects. She knew her area did not have the capacity to do the university-initiated project. In some cases, she noted that if the project was ignored, it may just go away and if not, and the dean says it is a priority then “we work with our dean to see where we can to add that capacity, either through our graduate assistants or through resources that we pay outside to help us on a temporary basis”. Lara noted if it was a project that was completed that did that seem like it was bright and shiny,
but didn’t actually lead to anything, “to me that’s a failure, and we probably shouldn’t waste our time on it”. Lara shared “If I know something’s going be beneficial to the students, I’ll push it, even if it might not be the most fiscally responsible thing to do”.

**Theme #5 - Sense of Missed-Collaboration Opportunities**

In addition to working collaboratively to consider what projects an academic program might invest in, participants shared insights in the desire to collaborate with other groups to encourage efficiency, effectiveness, and re-use in project-based work. Lillian noted if a project opportunity arises that can be done collaboratively with other program groups, she would prioritize that project ahead of other things, recognizing that doing projects on her own would take longer. Cary shared that there tends to be missed opportunities to work efficiently on projects across program areas – for example, many of the master’s programs in his college seem to have an ethics course. He wondered why the organization would need seven different ethics courses when theoretically, one ethics course could be contextualized for different settings. He acknowledged that this results in duplication of effort, making one wonder if resources are being wasted by duplicating effort that could be better spent on other projects.

**Theme #6 - Sense of Disconnection – Immediate Leader vs. Organizational Support**

All participants recognized that their immediate leadership encourages ideas, opportunities and projects – but the resources don’t always fall into place for these to be supported. Lillian stated that there seems to be a perception that capacity is given to certain departments or certain schools, not based on any type of formula or based on any type of standard or outcomes or metrics. Lara noted that she hadn’t been in a position where she asked for support on something and didn’t receive it but also shared that she did not ask for support unless the project aligns strategically with leadership priorities and is something that needs to be done. Cary noted that the leadership in his college is now very supportive and very liberating in
terms of trying new things though he wondered if his college has the capacity to sustain all of the project products that are being implemented. Pam shared that changes in leadership have helped her group bond together and become stronger but more focused.

Despite this, evident from the interviews was that there is no common process for how the slate of projects is selected. There is no acknowledged inventory of projects within their divisions of the universities. There is no evidence of a process for how projects outside of the program area that the interviewees work in are identified, prioritized and approved. Lillian stated that there are projects that get initiated from the university, her senior management, driving towards university goals or outcomes. These are pushed down and though there is the ability to give feedback, the feedback doesn't really get implemented and often she and her peers become the end users that have to just go along with the project. From another perspective, if she and her team don't have the time or capacity to do it, they may just ignore the request (and, she noted, they these projects then tend to just go away) or, they may push back with the lack of capacity – in the latter case, if it is a priority, the dean will work to see where there may be a way to add that capacity. In this case, often her own initiatives she feels critical to her program are slowed down.

Theme #7 - Lack of Visibility of Division Wide Portfolio/ Overall System Capacity

There seemed to be a general sense of frustration with lack of visibility to what other projects are going on inside their organization. It was also wondered how and why (or why not) these projects were selected and how the products that are the result of projects will be sustained.

Cary noted a key criterion around capacity is if the product of the project can be sustained. He stated that there are often good initiatives suggested but the concern is if they can be sustained once implemented. As part of selection criteria to consider, he would ask what is necessary to keep it going, making sure that you have all the key elements in alignment. He
reflected if there is a faculty member who’s going to take accountability for a program and if not, what are the implications of creating programs that don’t have people who are really nurturing them.

Pam shared in the past her program area tried to get as much done as it could, but there were immediate needs, where she knew that if something didn’t get done, there was the potential for somebody to complain and create a negative impact/perception. From a capacity perspective, Sam revealed that though his revenue is the same as another group in his university that has three times as many faculty as his program, when he asked why he is not give the same capacity, he was told the plan is to make the other area lean like his. He felt that his faculty need to work three times as much to keep up in terms of strategic placement and resource allocation.

Theme #8 - Empowerment – Fact or Fiction?

In identifying, prioritizing and selecting their own portfolio of projects, the sense of empowerment each felt they had differed. Lillian noted one of the benefits of working within her organization is that the HEI leaders own their space to determine and prioritize what projects are important. Ursa noted that one of the pleasures working at his university is the opportunity to make it his own and shared that the leadership is wonderful in that regard. Jack also shared the benefit of space - space to operate, space to explore. Though he noted that HEI leaders take their own empowerment, the counterpart to that is if one continually claims one’s own empowerment and is continually pushed back into line, at some point, that HEI leader is not going to feel empowered. Sam shared that he has to default to his management to make the decisions simply because in his position he has no control of the budget.
Theme #9 - Overall Concern that Portfolio not Optimized

The purpose of PPM is to maximize projects that are completed within an organization in alignment with its goals and investment strategies. Conversation of participants shared concerns that their portfolios may not be optimized.

There was evidence shared that often smaller projects and those easier to complete were chosen over longer, more strategic projects. Sam shared in looking at the whole umbrella of projects, that essentially improvements to the programs will take long periods of time and will cost more money. Though it may have a higher impact later in terms of revenues, at the same time there are a number of challenges to be overcome. He revealed that they prioritize the next project - what can be done immediately, versus what can we do over a course of the time, to support these different goals that have to be met over the course of the year around enrollment, retention, and other important goals. Cary noted the only way to ensure that that his group is spending time on the right initiatives is to make sure that projects support what the larger organization is trying to accomplish. This requires being clear on what those strategies are and their relative priorities. Lara noted there are times when the right projects were not picked, or she finds herself being drawn in to other projects that were not something that was on her priority list.

Missing data for decision making introduced concern that the most valuable projects were not picked. Ursa concluded that he doesn’t have a good handle if completing a project means that enrollment would increase by 10, 15, or 20% and he recognized that it may be two or three years before he has a better idea of all that. Sam indicated it is not clear how some of these initiatives are going to impact the overall strategic goal for the University. He shared if one looked at the data that the university mapped out to the overarching goal, everything maps out to show value. He noted that this is not the reality.
Conclusion of Themes

These themes are critical because they identified the strengths and challenges of how higher education leaders identify, prioritize and manage their slate of projects, recognizing that these projects are how their organization is investing it itself to meet its strategic goals. Each HEI leader is working to make wise decisions based on their translation of strategic goals to projects balanced with the resources at their disposal. However, it is likely that the selection of projects is not optimized given the approaches they are able to implement.

Nine super ordinate themes emerged from this study of how higher education leaders identify, prioritize and manage their slate of projects. The themes captured the continuum of supporting and hindering factors. The first theme noted the difficulty in translating visionary goal statements to tactical projects to identify which ones are appropriate while the second theme related the lack of a decision-making framework to select and prioritize projects. Decision-making is further affected by not having timely and relevant data to decide which projects to select and continue to do. The lack of a consistent decision framework led to conflicting priorities between the interviewees and their leadership and a feeling if empowerment in one’s selection is real or not. This is further compounded by a sense of disconnection – feeling supported by immediate supervisors but not by the organization and feeling a lack of visibility to what is going on division-wide. This contributed to a sense of missed-collaborations and an overall concern that project portfolios are not optimized.

Research Question Analysis - Relationship to Research Question

The research question that guided this study was, “What is the process that HEI leaders use to choose and maintain their slate of projects?” This study described how this collection of seven mid-level leaders within two different higher education institutions identify, prioritize and manage their slate of projects.
These insights were achieved through seven semi-structured interviews across the two sites where each participant discussed how they identify, prioritize and manager their collection of projects, an analysis of publicly available documents and analytical memos. Nine themes emerged from the data that addressed the research question as disclosed above. The following sections considers how the collected data answers the research question.

**Document Review Informing Research Question**

The researcher did a search for “strategic plan” on the two study university web sites and found the strategic plans mentioned in interviews. For one school, the strategy of its parent university was identified and for the other university, the strategy of university as well as the college participants report into was also located. This research was essential as participants have mentioned that the strategic plans are used to identify projects to align to these and also, issues in determining tactics to support these strategies was identified as a theme.

The documents reviewed gave the researcher a clear view into each university’s strategic plans. These goals are aspirational in nature; it was not clear from reviewing these how it would be determined if each strategy was attained. The interviews and observations further revealed the operational aspects and informed the strategic intent.

**Interview Review Informing Research Question**

The seven interviewed participants all indicated the importance of selecting projects that align with the strategic goals as well as promote the student experience. They shared varying experiences in how the applied process supported and hindered the selection. The process steps were used to answer the central question of this research. A summary of the similarities and nuances are described below. The process explained is structured around one of the theoretical frameworks for this project – laying out a process/system for the PPM work and using the governance structure of The Guide to Portfolio Management (2008) as the steps in the system.
Overall, all participants responded to questions that described their process as:

**Figure 2: PPM Process**

**Identify/ categorize.** All participants stated that potential projects come from a number of sources, driven from not only their own perspectives but also from that outside of their program. This open system supplies a number of projects that can be completed. All mentioned that their University mission, vision, and goals drive their own identification of potential projects and some are also identified based on their own insights for what needs to be done for their program/campus – including maximizing the student experience and creating a strong program - in some cases their own "personal" projects. Other sources of project identification included faculty in their program, peers in their college, their own personal perspectives, students, and industry partners. Projects that contribute to increased enrollments were noted as critical. Each participant felt empowered to identify projects for their own program/campus area.

One participant mentioned “I’m seeing one source being the big picture, how do we fit into the overall strategy, and the other piece is just what are we learning from the way we’re delivering programs to our students, what kind of feedback are we getting, and what does it mean. What do we have to do to make that a better experience? I guess those are the two major sources.” Lara followed in a similar vein, noting “I think identifying projects comes from a few different sources. I think some of them are personal passion projects of my own, things that I’ve
been interested in or seen or see as a weak point, and kind of doing a critical self-reflection of what our program looks like.”

**Evaluation/ selection.** In selecting projects, three of the seven participants relied on business case insights, market data and financial analysis to determine if a project has merit. All seven participants mentioned that alignment to university goals was a factor as well as confirming that the project supports their program and students. Two of the seven suggested the amount of time that a project might take as deciding factors, confirming if there is capacity to complete. Lara noted “For me, I’m 100%, is this going increase the student experience? If it’s not going benefit the students, it’s really going be a waste of my time.” She went on to explain that she is at a position now where she has to ask herself “Is this going increase enrollments? Is this going be a cost-effective thing to do? Is there buy-in from my dean, and my associate dean and my assistant dean that are kind of supportive of this idea? And do we have the manpower to do it? Or do I have the time to kind of commit to that?”

**Prioritize/ balance.** As a result of the seven interviews, there was no clear decision framework or rubric that emerged in determining, of the identified projects, which ones should be done. Jack noted “So, I think there are a lot of factors that go into that. Formally I don’t think there is much support here in the University system for someone to make those decisions. It’s almost like because you’re asking what your decision framework is. Right? That’s the core question of what you are asking? How do you weight different factors? How do you make those decisions? I think that is done in a very ad hoc manner program to program.” Lara discussed that “I would like to say that I make all my decisions based on alignment with our strategic plan and goals, but I think a lot of it also for me is what do I think will be most beneficial to the students? And then, which of those things also aligns with some of our strategic goals and go from there.”
All talk about having sufficient resources to do the project as a selection criterion. Ursa mentioned that the available faculty workload drove what can be done while several talked about the ability to add resources if necessary, recognizing that if that answer is no, it is a statement that the project is not valued by leaders. One interviewee mentioned needing to push back on leaders if the capacity was not available. Pam noted “We’ve not been good at that, we’ve stretched people in many directions and it’s created some challenges”. She stated that the renewed focus on deciding what projects should be done will contribute to addressing this problem.

Lillian acknowledged both capacity and deadlines drove what is prioritized stating “For example, if there’s accreditation deadlines then of course I would prioritize those deadlines prior to something else. And if upper management comes in and says, "Hey, we need X, X and X" then I would evaluate those and see where it would fit onto my project timeline as well. So those are certain factors that would help me decide how to prioritize certain projects”. She confirmed her desired outcomes in terms of student experience and meeting a key need from her perspective– for example, a change in a program that hasn’t been updated for some time would drive her own internal prioritizations along with university outcomes. She stated that the priorities need to confirm that “we are addressing those needs as well in terms of meeting our metrics and how we get evaluated through our accreditation”.

Sam indicated that some prioritizations are driven by “calendar deadlines, particularly for a program that may require scholastic or board approvals that need to be brought up by a certain date in order to make the catalog for next year. It is a real balancing act”. Ursa shared that his process of prioritizing is based on his goals to innovate a program to achieve competitive advantage. Time in workloads was allocated for this but if it goes beyond that then “alignment and sponsorship along with a resource that will drive the project are also considerations”.
**Portfolio authorization.** Gleaned from each participant is that approvals were made project by project and not for the portfolio as a whole. The level of approval depended on the project – participants noted that if it is a new program (or, things that change the institution's catalog), there is a more involved process for approving that project. There are many projects that can be approved by the interviewee. One participant noted “some projects go through a more formal process, and some of them you’re approving yourself in your role. You’re deciding if those will get done. If you change the number of credits in a program, it has to go through governance. If you’re deciding, "Hey, we’re going to just revise the approach to our capstone," we can make those decisions, absolutely”. Jack noted that “Many projects I would say that 80% of the operational projects, the projects associated with just running a program are made at that faculty chair or lead faculty member and whatever the corresponding administrative partner is. So, maybe someone at an associate or dean level position. That is 80 – 85% of most of the projects that happen on a normal kind of basis. The other 20% it can just vary incredibly”. Even though as a HEI leader the project may have value, as it moves up the chain for approval, Sam acknowledged that “I am sure that some of these initiatives probably die there too because my manager considers overall how many other things are on the plate that he can bring to the provost”.

**Portfolio oversight.** In determining if a project should remain in the portfolio or be removed, five of the seven participants suggested that they continued to watch the benefits and if it seemed the benefits would not be met, that project came off the plate. One interviewee talked about stepping back at time intervals and deciding for each project if it should it be continued, stopped, or adjusted based on that analysis. It was noted by participants that other projects may come in over the year that have higher priority. In this case, four of the seven participants stated that the other projects may slow down but generally are not taken off the plate.
Participants noted it is challenging to know if the right projects are being completed or even to remove projects if it is determined they no longer appear to have value. One participant discussed the difficulty in seeing the benefits in a timely way recognizing that in fact, it may not be until project is done and the investment made. Jack provided that “And so, on one level, one simply says, "Well I’m going to remove projects when I no longer think they are going to deliver the level of value that I think they should deliver. You would close it down because even the costs that you’ve already incurred, it’s not worth the return that you would get. You’re better off just taking it as a front cost”. Also discussed was the difficulty in actually stopping a project. Jack specified that “there’s no clear answer on how those decisions should be made. I have fought for certain projects to be closed down that were not closed down because of maybe perception in the media. Even if you have the ability to set down a project, simply based on it does or does not hit these metrics, it oftentimes is not that simple. Oftentimes, there are careers entangled in some major projects. There are people that are on that project that may be temporary hires on a contract, so their livelihood goes away, and there may be political reasons for that project to exist that really aren’t documented. But people know it’s there.” Lara provided “I think there’s lots of shuffling of projects. When I first started, one of the most important projects was this idea of industry embedded and it quickly became clear that it was going be very, very, very challenging. And I let it go. It was one of those things where there was a lot of people who thought it was a good idea, however, once we started kind of doing some of the preliminary research and outreach, it became clear that ... It wasn’t going to be a good fit for us”. Pam indicated that “it’s not a clear-cut process... my dean doesn’t come and say, "Okay, we’re going to shove this for a while, don’t work on this." It’s more like, "We’re got to wait a little bit. Keep working on it but I can’t tell you exactly what’s going to happen right now."
Process – supporting factors and challenges. Participants noted that their leadership and empowering oneself are factors that support the project selection process - along with having clear organizational goals to align projects to. Interviewees felt they are given space to explore/pursue projects. Challenging factors mentioned include lack of collaboration, feeling like one works in a silo, the number of redundant projects/ courses, and communication. One interviewee noted that what leaders’ value doesn't seem to be valuable for students. Another participant suggested that data is important in the decision process - and can be supporting if available and a challenge if not. Another noted challenge is knowing if the projects selected will really support moving the goals forward.

PPM results. One participant noted it is not clear how all initiatives - though mapped to the plan - do provide value. Others noted that organizational goals provide clarity for what to focus on though it is not clear how these are measured. Another participant mentioned that projects are selected based on goals of the organization as guiding principles. Another participant suggested creating KPI’s though it may not be known for a year or two or more if it really helped. Participants linked this back to alignment with goals - and then the ability to do the project. Measures are more forward in time - did retention increase, for example. Data may not be available or a term or two behind. One participant noted there are times when the right projects are not picked but that it may not be realized at the time. To summarize, overall, though participants feel they are going in right direction, it is often too early in the process of the project to know if goals are being met. One participant suggested that a well-defined rubric could help as well as better/ more frequent communication of goals.

Journals Entries Informing Research Question

All seven participants appeared confident in their knowledge of how they select the projects completed by their areas. Jack was very clear and on target, sharing many examples.
He was very candid in his responses. Cary was articulate and up-beat in explaining his selection process. He seemed invigorated about the support of his leadership in this process; that they are open to his initiation of ideas and he feels in control of how projects are initiated in his area. Sam was very clear on how the process works in his area but frustrated by the lack of support – acknowledging that many of his suggested insights are not funded. Pam was encouraged by the new process engaged by her area this year. Since it is all new and still more theoretically based, some of her insights were not included in the study. Lara was also thorough and responsive to the questions – she was very clear on what was working and not working for her. Lillian was specific about the different paths that projects might take but appeared frustrated about balancing work required and capacity. She mentioned as we were disconnecting our call that if it wasn’t for her adjunct faculty going above and beyond, she wasn’t sure how her program would stay relevant. Ursa was newer to his higher education position and has brought an industry/analytical background to this work – he remarked how the interview questions provided food for thought in how he is determining the projects to move forward within his organization.

**Conclusion**

As explained earlier, the purpose of this study instrumental case study was to examine the current state process that HEI leaders employ to choose and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals. To answer this question, the researcher conducted semi-structured interviews with seven participants, from two distinct sites. Interviews were conducted over a virtual platform, transcribed and coded.

The first part of this chapter shared an overview of each participants interview, highlighting their process, its strengths and challenges. The coding and clustering of the study
was presented which led to the development of the themes. Looking across all questions and all participants, nine themes were identified, explained, and concluded through their relevance to each other. This chapter then denoted how each participant explained their process around a PPM framework, providing the detailed answer to the central question of this study - “What is the process that HEI leaders use to choose and maintain their slate of projects?”

Having reported the research themes for this study, the next chapter will build on the analysis to consider the results through the lens of the theoretical frameworks, PPM Maturity and Systems thinking. This chapter will also share conclusions, implications for practice also present suggestions for future research.
CHAPTER 5 – IMPLICATIONS AND CONCLUSIONS

The purpose of this instrumental case study was to examine the current state process that HEI leaders employ to choose - identify, evaluate, prioritize, balance, authorize - and maintain their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity. This allowed its strengths and potential opportunities to be identified in order to optimize the process to support meeting HEI mission and goals. The central question of this study was “What is the process that HEI leaders use to choose and maintain their slate of projects?” This question was studied through an instrumental case study by examining the current state practices of seven higher education leaders in identifying, prioritizing and managing their slate of projects.

The overarching research goal was to investigate how project portfolio management can be deployed as a strategy to support higher education institution’s ability to deliver to its strategic objectives and defined services. This study contributed to this work through examining the current challenges within a higher education institution, its current project portfolio process and the strengths and weaknesses of this process in helping the organization align with projects that satisfy its mission and goals. The body of knowledge of project portfolio management and best practices in its application were used to determine the maturity level of the process, its operations from a system thinking perspective and then to provide short- and longer-term recommendations. The longer-term research goal is to determine how project portfolio management can be deployed as a strategy to support higher education institution’s ability to deliver to its strategic objectives and defined services.

The results of the research fill a void existing in the current literature. A review of the literature does not confirm that PPM has been well applied in the academic organization. Given the number of projects available to complete with the higher education institution based on
external demands, and constraints faced within the institution, a study of PPM in the higher education context may allow these organizations to acknowledge how techniques generally seen as for-profit organizations apply in their space. Working to create a process that matches the necessary project management maturity with their environment may allow these organizations to be more efficient and effective in the project-based work necessary to meet their strategic goals.

This chapter begins by connecting the analysis and themes in Chapter 4 to determine the findings from this study. These findings are aligned to the theoretical frameworks, PPM maturity and systems thinking and related to the research question. The chapter continues with the implications for practice. The final section of this chapter concludes with suggestions for future research based on what was and what was not found in this study.

**Findings**

There are four findings as a result of this study. The research question that guided this study, “What is the process that HEI leaders use to choose and maintain their slate of projects?” was created to meet the purpose of this study - to examine the current state process that Higher Education Institution (HEI) Leaders employ to identify, evaluate, prioritize, balance, authorize and maintain the slate of initiatives undertaken within their organization and compare that process to benchmarks in PPM maturity as well as using the lens of systems thinking to examine these processes. Looking across seven program areas at two university sites reveals a common level of maturity in the PPM process and similar system archetypes in its operation. The findings align to the optimization of how the portfolio affects the organizations’ abilities to realize their organizational goals.

**Finding #1: PPM processes observed were aligned to the Ad Hoc PPM Maturity Level**

The focus of this study was to understand the experience of a HEI leaders in selecting projects to be completed in support of his/her program and benchmark this against a maturity
model. Interviews were coded against the project portfolio management maturity framework. The output from the analysis allows the conclusion that each HEI leader engaged in the study does employ some process for project selection. Participants are aware of the support and challenges of their process within their specific program/ domain. However, findings were limited to reside within their specific program. There was no evidence of an institutional or college process that provided direction to the creation of the project portfolio - the lack of an organizational process, including shared governance, limit the optimization and efficiency of the process (Pennypacker, 2005).

**Portfolio governance.** Portfolio governance includes processes that facilitate the governance of the organization's project portfolio including initial consideration of alignment criteria, portfolio review boards (Pennypacker, 2005). Pennypacker (2005) observed that when governance is done well, the portfolio is managed against strategic criteria and balanced to achieve objectives. The Pennypacker (2005) model describes each level maturity in this dimension as follows:

| Level 1                  | • No portfolio governance in place  
|                         | • Project evaluation does not align with vision, strategy and objectives. |
| Level 2                  | • Process in place to establish portfolio review boards  
|                         | • Policies and procedures in place for board operation  
|                         | • Each project is reviewed by board using strategic alignment (criteria not yet developed) |
| Level 3                  | • Division portfolio review boards report to enterprise-wide portfolio review board  
|                         | • Decision-making Criteria for alignment created and maintained,  
|                         | • Criteria used to evaluate projects |
| Level 4                  | • Strategic criteria used to accept projects into portfolio as well as prioritize them  
|                         | • Lessons learned integrated enterprise wide  
|                         | • Portfolio status used for decision-making |
Table 4: Overview - PPM Maturity Model – Portfolio Governance

From this study, it was noted that approvals depend on the type of project - if the project is the creation of a new program (or, revisions to a program that change the institution's catalog), there is a more involved process for the approval of that project. There are also many projects that can be approved by the interviewee though there is no formal process observed. All participants noted that authorization of a project depends on its value and reach and may range from the faculty lead for approval to the top tiers of the University, where “more governance with different groups” exists. In this case, Jack speculated, as more people are involved, there is the “risk of collective wisdom or shared ignorance”.

There was no awareness of artifacts used in the process; beyond the HEI leader’s own process, no defined portfolio selection process was observed at the college or organizational level, beyond the necessary approvals required by the University for a particular project, for how projects are selected. Jack noted that this may lead to “doing projects that are not as important”. He wondered “how to enable projects to arise in an innovative and organized manner” given that faculty leads are continually “pushed into line”. All nine themes connect to this finding.

Given the data collected from this study, the level of maturity for portfolio governance as described by each HEI leader was rated as a Level 1. Though individuals included some consideration to organizational goals to identify projects, there was no noted presence of
portfolio governance. Pennypacker (2005) surmised that as the organization matures in this component, enterprise and division portfolio review boards are created to evolve portfolio governance decision-making, including processes and procedures and the use of strategic criteria to balance the mix of authorized projects.

**Project opportunity assessment.** This maturity component addresses processes around identifying and consistently assessing opportunities (Pennypacker, 2005). Pennypacker’s (2005) model stated that the areas of focus include project identification/opportunity assessment, roles and responsibilities, business value determination, portfolio review board. The Pennypacker (2005) model described each level maturity in this dimension as follows:

| Level 1 | • Ad hoc/ no standard processes to identify projects  
|         | • No available, maintained list of project opportunities  
|         | • Ad hoc/ no standard processes for determining project business value  
|         | • No alignment of roles/responsibilities for identifying/ managing project opportunities  
| Level 2 | • Basic project opportunity identification process in place  
|         | • Defined roles/responsibilities for identifying/ managing project opportunities  
|         | • Project charter-type artifact used to identify/initiate projects  
|         | • Key stakeholders and business needs determined  
|         | • Project manager communicates using standard reports  
| Level 3 | • Organization wide, documented process for identifying and tracking projects  
|         | • Organization wide, documented process to define business value (integrated business case)  
|         | • Business value roles/ responsibilities established  
|         | • Formal project initiation process in place  
|         | • Formal communication provided on project status  
|         | • Process to evaluate each project before placed in portfolio  
|         | • Portfolio review board validates data for each project  

Table 5: Overview - PPM Maturity Model – Opportunity Assessment

A summary of the interviews noted that projects are initiated from many sources beyond the HEI leader interviewed, making this an open system. All mentioned that their University mission/vision/goals drove some of the opportunity identification well as their own insights around what needs to be done for their program/campus. Each felt empowered to initiate projects for their own program/campus area. All mentioned enhancing the student experience as well as creating a strong academic program as critical - in some cases their own "personal" projects. Three of the seven interviewed developed a business case to confirm their analysis that includes market data and some level of financial analysis. All participants shared that they ensure that each project either connected to university goals or supported their program/ students. One interviewee noted the longer term vision of the college - aligning the strategic mission with what is relevant in the market and the college has the capacity and skill to do to - while another complained that “I think often times you have strategic people saying ‘But we’ve told you the strategy, but we’ve told you the strategy’ and more tactical people saying ‘I don’t understand how that strategy filters down into the daily life of what we’re doing.’” So, that stronger
connection between the strategic direction and the tactical work that must be done to accomplish that I think is huge”. All themes are linked to this finding.

The overall maturity for the opportunity assessment process described by each HEI leaders was rated as a “Level 1” given the evidence of this study. Processes were limited at the individual level and not seen at the college or university level. These appeared ad hoc for that individual with different levels of process used to identify and evaluation opportunities. Pennypacker (2005) surmised that as the organization matures in this dimension, processes and artifact templates for opportunity identification, business case work, project approval and lessons learned are integrated, the portfolio review board is more involved and plan versus actuals are used to improve the process.

**PPM communication.** This maturity component includes the processes that facilitate the collection and sharing of portfolio info (Pennypacker, 2005). Pennypacker’s (2005) model included the list of approved projects, with consistent data for each project, and portfolio info sharing across organization and the processes to navigate through this. The component also included project management processes and categorization of projects/ balancing project investment with organizational goals (Pennypacker, 2005). The Pennypacker (2005) model described each level maturity in this dimension as follows:

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No acknowledged division wide list of projects</td>
<td>• A list of active and pending projects maintained</td>
</tr>
<tr>
<td>• No portfolio-based information defined</td>
<td>• Defined process for reviewing and updating the portfolio</td>
</tr>
<tr>
<td>• No portfolio-based information available</td>
<td>• Cross-divisional projects apply project management processes per organizational standards.</td>
</tr>
<tr>
<td></td>
<td>• Project status communicated</td>
</tr>
<tr>
<td></td>
<td>• All projects include owner/sponsor information, high level status information, descriptive information, timing of work and</td>
</tr>
</tbody>
</table>
Participants shared that they often felt that they make these decisions in a silo, not knowing what projects are being considered or completed in other program areas. Though they embraced collaboration, each felt they live in a silo but believed that working together would create better opportunities and decision-making. Themes 2, 4 and 6 links most closely with this maturity component.

From the study analysis, the level of maturity for PPM communications as described by each HEI leader was rated as a Level 1. Pennypacker (2005) surmised that actions to promote

### Table 6: Overview - PPM Maturity Model – PPM Communication

| Level 3 | • Process to compile portfolio-level information to business unit for review/ investment balance  
• Detailed information tracked for each project in portfolio  
• Risk work completed and tracked for each project in portfolio  
• Inventory of new and completed projects/ changes to project portfolio-maintained organization wide  
• Standard project management processes used for organization-wide projects |
| Level 4 | • Project portfolio information is validated including data and assumptions  
• Asset inventory created and maintained according to documented process, used for future selection and reviews  
• Project investment information provided on demand to decision-makers |
| Level 5 | • Decision-making process reviewed for improvements  
• Baseline data for project and portfolio communications collected  
• Benchmark with external best-in-class organizations  
• Improvements integrated to project and portfolio communications management process |

resources
• Projects are balanced around enterprise goals and objectives  
• Basic process to create portfolio snapshot  
• Portfolio information is communicated through division
the maturity in this component area are creation and adherence to corporate project management processes, starting with the division level and then including the enterprise level, creating a project inventory that includes the entire organization and that information is available to all within the organization.

**Project performance management.** This maturity model component includes the processes to collect, analyze and manage information in PPM processes and decision making (Pennypacker, 2005). The Pennypacker (2005) model described each level maturity in this dimension as follows:

<table>
<thead>
<tr>
<th>Level 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ad hoc/ no process for project portfolio management and review</td>
<td></td>
</tr>
<tr>
<td>• High-risk/high value projects are not formally reviewed</td>
<td></td>
</tr>
<tr>
<td>• Ad hoc portfolio management controls that are inconsistent and unstructured</td>
<td></td>
</tr>
<tr>
<td>• Portfolio inventory rarely up-to-date with all projects</td>
<td></td>
</tr>
<tr>
<td>• Project outcome evaluations/ lessons learned not/rarely completed</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Limited reviews of portfolio information</td>
<td></td>
</tr>
<tr>
<td>• Defined process to analyze and report on portfolio</td>
<td></td>
</tr>
<tr>
<td>• High-risk/high-value projects identified/ reviewed</td>
<td></td>
</tr>
<tr>
<td>• Process for all projects to be monitored for cost and schedule</td>
<td></td>
</tr>
<tr>
<td>• All projects cost and schedule data are made available to portfolio review board</td>
<td></td>
</tr>
<tr>
<td>• Portfolio review board uses established criteria to oversee project performance</td>
<td></td>
</tr>
<tr>
<td>• Portfolio review board reviews of non-performing projects</td>
<td></td>
</tr>
<tr>
<td>• Corrective actions are validated by portfolio review board</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Organizational standards/ processes are in place to analyze and report on enterprise portfolio</td>
<td></td>
</tr>
<tr>
<td>• Portfolio analyzed to make balanced investment decisions</td>
<td></td>
</tr>
<tr>
<td>• Project benefit and risk management are included in project oversight process</td>
<td></td>
</tr>
<tr>
<td>• Organization-wide portfolio review board monitors performance of projects in portfolio (Planned vs. actual)</td>
<td></td>
</tr>
<tr>
<td>• Portfolio review board employs established criteria to identify projects not meeting performance expectations (cost-benefit-schedule-risk)</td>
<td></td>
</tr>
<tr>
<td>• Portfolio review board confirms project managers develop corrective action plan</td>
<td></td>
</tr>
<tr>
<td>• All projects hold reviews/ communicate issues to management</td>
<td></td>
</tr>
</tbody>
</table>
Table 7: Overview - PPM Maturity Model – Project Performance Management

From the interviews, five of the seven talked about watching benefits of the project – or its resulting product - and if it seems the benefits were not met, that project or product may come off the plate. One interviewee talked about stepping back at time intervals and asking "are we in line" – and then decides to continue, stop, adjust the project based on that. Participants noted that other projects would come in that have higher leadership priority; in this case, four of the seven participants acknowledged that their other projects may slow down but are not taken off plate. Another talked about difficulty in seeing benefit in a timely way - may not be until project is done. Themes 4, 6 and 7 link to describe this as well.

From the study analysis, the level of maturity for project performance management as described by each HEI leader was rated as a Level 1. Pennypacker (2005) surmised that actions to promote the maturity in this component area are to create and institutionalize process and standards for portfolio performance management along with conducting portfolio review and analysis to confirm the correct balance of projects. Pennypacker (2005) also suggested the
introduction of the enterprise portfolio review board that uses defined criteria to prioritize projects.

**Portfolio resource management.** This maturity component includes the processes to assign resources to support projects in portfolio (Pennypacker, 2005). The Pennypacker (2005) model described each level maturity in this dimension as follows:

<table>
<thead>
<tr>
<th>Level 1</th>
<th>• Ad hoc process to assign resources to projects based on availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>• Resource skill set, and availability are identified</td>
</tr>
<tr>
<td></td>
<td>• Resource managed collaboratively across division</td>
</tr>
<tr>
<td></td>
<td>• Project prioritization exists at division level and includes guidelines to manage priorities given limited resources</td>
</tr>
<tr>
<td>Level 3</td>
<td>• Existence of organizational resource pool – skill, availability and knowledge</td>
</tr>
<tr>
<td></td>
<td>• Enterprise priorities set by enterprise review board and leaders assign resources based on priorities and skills</td>
</tr>
<tr>
<td>Level 4</td>
<td>• Resource analysis and reporting completed at enterprise and division levels to ensure productivity and effectiveness to accomplish project objectives and portfolio financial drivers</td>
</tr>
<tr>
<td>Level 5</td>
<td>• Process in place to improve project portfolio performance management process</td>
</tr>
<tr>
<td></td>
<td>• Benchmark with external best-in-class organizations</td>
</tr>
<tr>
<td></td>
<td>• Improvements integrated to project prioritization and selection process.</td>
</tr>
</tbody>
</table>

**Table 8: Overview - PPM Maturity Model – Portfolio Resource Management**

All participants talked about having resources to do the project as a criterion in determining if a project can be completed or not. Two of the seven interviewed discussed the amount of effort/ time constraints as deciding factors. Alignment and sponsorship along with a resource that will drive the project were also considerations. No clear decision framework/rubric was observed. One interviewee mentioned that faculty workload drives what can be done while
another talked about the ability to add resources if necessary (and, if that answer is no, it indicates the project was not valued by leaders). One interviewee mentioned needing to push back on leaders if resource capacity does not exist. Themes 4, 5 and 7 provide evidence for this maturity component.

The level of maturity for portfolio resource management as described by each HEI leader was rated as a Level 1. Pennypacker (2005) surmised that actions to promote the maturity in this component area would be to conduct project prioritization through the enterprise-level portfolio review board, to base portfolio resource management upon resource skills and project priorities, resource pools are created and managed and the review board ensures resource continuity across all projects.

**Portfolio prioritization/ selection.** This maturity component addresses process to review, prioritize and select projects in portfolio (Pennypacker, 2005). The Pennypacker (2005) model described each level maturity in this dimension as follows:

| Level 1 | • Ad hoc/ no process for project portfolio management and review  
| | • Projects funded while missing information that confirms demonstration of improvements to business or mission |
| Level 2 | • Standard process at the organizational level for business value definition  
| | • Clearly articulated roles and responsibilities – business value determination  
| | • Simple prioritization scheme employed, based on subjective factors  
| | • Business value and prioritization reviewed by key stakeholders |
| Level 3 | • Clearly defined roles/responsibilities for project prioritization  
| | • Prioritization supports alignment to strategy and goals  
| | • Structured process employed by organization to develop project proposals  
| | • Project proposals reviewed through established selection criteria  
| | • Funding decisions made by executives following established process  
| | • Portfolio review boards use portfolio selection criteria to assess each project |
| Level 4 | • Standard models are used to prioritize projects, update prioritization  
| | • Process in place to communicate organization-wide selection criteria used  
| | • Enterprise review board approves selection criteria based on strategy |
mission, goals, priorities of organization
- Process exists and is employed to compare projects and then integrate into enterprise portfolio
- Projects are assigned to portfolio category
- Portfolio review board uses categories to make funding selections
- Repository created and maintained

| Level 5 | • Process in place to improve project portfolio performance management process
• Benchmark with external best-in-class organizations
• Improvements integrated to project prioritization and selection process. |

| Table 9: Overview - PPM Maturity Model –Portfolio Prioritization |

Each HEI leader has their process for selecting projects that does include industry standards of identification, evaluation, selection, balancing, authorizing and managing. Jack noted “there is a range of projects” within the college and shared that there are many ways a project is identified and initiated; it may be regulatory, strategic, or operational, driven from the top down or bottom up. Once identified, he noted that a business case may be built, or a dean may be involved, depending on the project. “Many projects, I would say that 80% of the operational projects, the projects associated with just running a program are made at that faculty chair or lead faculty member and whatever the corresponding administrative partner is; rarely are decisions about projects made by a single person” and goes on to share that there is no consistent process at the college level and that it “can be ad hoc program to program”.

In addition to noting available resources as a selection criterion as described above in portfolio resource management, alignment and sponsorship along with a resource that will drive the project were also considerations. One participant noted there are times when the right projects are not picked but may it not be realized at the time. Data may not be available or a term or two behind. No clear decision framework or rubric exists to provide guidelines; it was noted that a rubric could help as well as better/ more frequent communication of goals.
Measures were lagging in time through the examination of actual realized benefits; for example, did a project effort actually increase retention. Themes 1, 2, 3, 7 and 9 all provide evidence of this.

Given the insights shared from participants, the level of maturity for portfolio prioritization as described by each HEI leader was rated as a Level 1. Pennypacker (2005) surmised that actions to promote the maturity in this component area are better defined processes and criteria that are consistently understood and applied across the organization, a more active portfolio review board in the review and selection process, and processes that support new project proposal decision-making.

**Conclusion.** Following the findings noted in this section of the study, the overall maturity of the studied PPM processes for each HEI leader – not the university or college as a whole - was assigned as Level 1 maturity. Each HEI leader considered elements of this work within their own area with differing levels of formality. The study also confirmed that all seven participants support improving the maturity of the PPM. It was not determined if the college or university have a PPM process in place nor was it determined what the appropriate level of PPM maturity should be for optimized results. However, the implications of not having the appropriate level of maturity introduced the potential that the correct portfolio of projects is not selected and managed in an efficient and effective way. Short- and longer-term recommendations were included in implications for practice. Recommendations for further research in university and college PPM were also included later in this study.

**Finding #2: PPM process observed was limited in its reach**

**PPM process observed was limited to the HEI leaders’ programs.** The initial focus of this study was to understand the process used by HEI leaders in selecting projects to be completed in support of his/her program and benchmark this against a maturity model.
Confirmed by the PPM maturity assessment in Finding #1, it is important to note that there was no evidence - nor was its part of this study – that PPM was practiced at the college or university levels. The observations of the study were limited to the HEI leaders; however, the lack of this in conversations with participants contributed to the Basic Level 1 maturity assessment and may contribute to the organizations not realizing full value of the portfolios in place. This again contributed to the maturity assessment in Finding #1 and leads into opportunities for future research and implications of practice. This is integrated into the recommendations for this study.

Projects - not portfolios - are approved. From the participants’ insights, it was clear how their individual projects were identified and approved to complete or not complete. What was not evident from the study is how the portfolio of projects was approved – that the portfolio was validated against the strategy as a whole to determine that there is a thorough approach to ensuring that all strategic goals are addressed according to their priorities and that no one strategic goal or goals is the unintended primary focus. It was not evidenced that the portfolio is balanced for risk or “keeping the lights on” initiatives. Extended investigation into this part of the PPM process was recommended for further research.

Conclusion. These observations supported the Level 1 maturity implied in Finding 1. The missing insight into a college and university level process, and how it connects to the program work of the HEI leaders, should be examined. In studying these processes, it will be key to consider the organizational strategy and goals, the priority of these and how ongoing projects align to them. This will allow confirmation that there is appropriate consideration to all strategies and goals through the portfolio of project work, that the portfolio is balanced and providing optimized value to the organization.
Finding #3: Systems thinking archetypes may limit optimization

The initial focus of this study was to understand the experience of HEI leaders in selecting projects to be completed in support of his/her program and benchmark this against a maturity model. Participants shared several factors in the process that hinder their ability to select and maintain their slate of projects, particularly when considering the results of the process. In reviewing these issues from a system thinking perspective, particularly around the execution of reinforcing and balancing feedback loops, one system archetype was observed. Archetypes are common system structures that produce problematic behavior (Meadows, 2008). Understanding the potential impact of these archetypes may provide insights into opportunities to analyze the PPM process from a system thinking perspective and offer solutions to mature the PPM process.

Leadership and empowering oneself to explore and pursue projects were suggested as elements that support the PPM process - along with having clear organizational goals to use as the basis for project alignment. It was suggested that more clarity on the strategic direction and how to translate these goals to projects would be helpful. It was pointed out that data is important - and can be supporting if available and a challenge if not; participants recognized that not having data may contribute to poor decision making in what projects to select or continue if the benefit is not known until the funds are spent. It was also noted that it takes significant effort to determine what projects to do since the life of the resulting product and what it will take to sustain it must be considered. Another challenging factor included lack of collaboration, feeling that one works in a silo and limited visibility into other programs. Participants suggested working more collaboratively would be helpful and may help to reduce the number of redundant projects/courses and lack of sufficient communication. One interviewee noted that what executive leaders’ value doesn't seem to be valuable for students while several suggested that a
challenge is knowing if the projects selected will really support moving the goals forward. Yet another discussed that funding for his slate of projects is based on a proportional funding based on student enrollment. These factors are grouped and modeled through the following systems thinking archetypes; this analysis can be used to identify recommendations for the process.

**Success to the successful.** Meadows (2008) shared that this archetype addresses the dilemma noted on proportional funding based on enrollment; that the program with more students was given a higher proportion of the budget for project work. Success to the successful is a reinforcing loop that provides more to the perceived winner (Meadows, 2008) – in this case, the leader with a higher enrollment was given more resources to support their program which led to a higher probability of increased success for that leader and could lead to the demise of the HEI leader with lower enrollment. Meadows (2008) suggested one strategy to address this is by equalizing advantages or leveling the playing field. In the case of PPM, this may include evaluating each project on its own merit instead of providing program funding by enrollment percentage.

**Noted challenges not aligned to archetype.** From participant observations, there were four other scenarios that were necessary to consider though these are not evidently addressed through the systems thinking archetypes. These included 1) translation of goals to the correct inventory of projects, 2) conflicting goal priorities between university and college leaders and the HEI leaders involved in the study, 3) working in silos versus collaboratively (addressed to some extent in “Success to the successful” and Finding #4, below) and 4) delay in linking benefit to expenditure (also addressed in Finding #4).

**Conclusion.** The implications of these common archetypes may be that the PPM process, or system, is not optimized. Meadows (2008) recommended that understanding or putting up with these archetypes is not sufficient; they need to be addressed. In this case, the
recognition that these archetypes exist in the PPM process can provide guidance in developing a more mature PPM process. The presence of these should be integrated in the implications for practice as well as included in the future research interview protocol.

**Finding #4: System Thinking Perspective is Limited in the PPM Process**

**Lack of holistic process.** PMI, in The Standard for Portfolio Management (2017), stated that a portfolio is “a system of interconnected components interacting with each other and their environment” (p. 112). A portfolio system should extend beyond its component parts and view the portfolio as a whole while analyzing the interaction of the component parts (PMI, 2017). The Standard (2017) explained that these interactions create balancing and reinforcing loops. Acknowledging the dependencies between components is key to the PPM systems resilience. In this study, participants shared that they work in their own program silo to complete their PPM work though each recognized the value of working more collaboratively.

**Feedback loops are limited.** Feedback loops work to keep a system in check by regulating the stocks in the system (Meadows, 2008). From a systems thinking perspective, based on participant insights, feedback loops – balancing and reinforcing – appeared limited to key points in time within the HEI leader’s domain and limited in their application.

The purpose of the reinforcing feedback loop is to amplify the stock and enhances the direction the change is moving in (Meadows, 2008). One participant noted it is not clear how all initiatives - though mapped to the strategic plan - do provide value. This would be an effective use of a reinforcing loop - to understand and work to measure the benefits of the project as early as possible and allow decisions that reinforce completing that project sooner or to add to its reach.

Balancing feedback loops work to stabilize the system and keep the stocks at a certain level (Meadows, 2008). In this study, as new projects were initiated and added to the workload,
participants didn’t balance the project stock by moving other projects out but instead continued those, though at a slower pace. The potential impact is that less valued projects may be completed, taking away from the highest value projects in the organization, or, as stated by two participants, extra hours are spent to keep projects moving forward.

**System delays affect PPM decision-making.** Delays are inherent in a system; each stock and flow likely include a delay (Meadows, 2008). Meadows (2008) noted that if decision points are based on delayed information, not only may the decision be off-target, actions taken may be insufficient to meet the decision-makers goals. In this study, participants noted the lack of, or timely availability of, data to decide if a project should be continued, revised or terminated. It was often after the project is implemented that the value assessment could be determined, leading to investing in projects that don’t actually contribute to the goal.

**Conclusion.** The PPM process appeared to live only within the reach of the individual HEI leader. From observations, the system appeared to be limited in its balancing and reinforcing loops. The availability of data to confirm project decisions was often not available. As the PPM process is matured beyond its ad hoc state, considerations for integrating these systems thinking perspectives in the research and practice could benefit its operational value.

**Implications and Recommendations**

**Implications for Practice**

The shorter-term implication of this work was to allow HEI leaders to understand the value of their current project portfolio management process, what contributed to its success and what impeded it realizing its complete value. From this, it was hoped that these HEI leaders can identify small changes that will create a more strategically balanced portfolio of projects. It was also intended that this awareness will allow other stakeholders to understand the reasons for the projects selected and contribute to their support for the optimized blend of projects. It was hoped
that the findings from this study can begin the creation of process and tools that can be used by any non-profit organization to inform effective choices in what projects should be done while considering multiple strategic directives and limited resources. It was also suggested that the results may encourage more research and translation to application, in the non-profit, particularly higher education, organizations. As the non-profit environment becomes more complex, project management is a set of tools to help leverage the capacity by first selecting only the right projects and then completing them in the right way.

On the nearer term, there are implications for practice that can be applied. HEI leaders can use the results of this study to guide their own selection process for projects – and how to navigate organizational challenges to best support this. Whether analyzing their own current state process or building one from none, the experiences of what is effective, or not, from this analysis will provide a foundation to create better practices for themselves – in their own way, to empower themselves. A composite of thoughts from study participants included more clarification to translate strategy to tactics, being more collaborative, more focus on prioritizing projects, asking good questions about what projects to do, and bouncing ideas off of others. It is hoped that the longer range and more strategic action will elevate this to the institutional level so that all selected projects are focused towards the strategic mission in a holistic and collaborative way.

The first recommendation from this study, connected to Finding #1 and Finding #2, is to design and deliver learning to support HEI leaders in shaping their portfolio management process. This learning would be aligned with actions to address the challenges mentioned by the participants in the study and to, as recommended by the group, work to improve their process by providing tools and techniques to support moving the maturity of the process from Level 1 to Level 2. The objectives would be to provide HEI leaders with guidance on good practices in
This would be introduced through a project portfolio management workshop that will focus on the topic from the bottom-up. A model that allows the HEI leader the ability to define the decision criteria for continuing, stopping or revising a project and then developing their own early warning system to best determine to actions should be included. In addition, a second workshop should be conducted to provide the HEI leaders with insights on good practices in project management to support them in creating their own project management practices that then can be optimized to support portfolio work.

Noting that effective project and portfolio management are based on applied routines within all levels of the organization, it is key that these knowledge workers acquire these routines; otherwise they find their own ad hoc ways to complete the work (Stettina et al., 2018). To integrate these skills effectively – given their tacit nature - Stettina et al. (2018) recommend gaining this declarative and procedural knowledge through serious game learning. Serious game learning, found to be limited in the PPM space, employs challenge-based learning to support knowledge acquisition and organizational change (Stettina et al., 2018). Stettina et al. (2018) note to do this well, the organizational goals must first be identified, then the on-the-job behavior of the participants determined that supports that goals; this is translated into the learning goals and the learning intervention is selected to achieve these learning goals. Serious games, in which education and not entertainment is the purpose, are one technique used to achieve these goals and can include (Stettina et al, 2018). Serious gaming should be considered for this recommended learning.

The second recommendation is to create an awareness of the systems archetype and other factors limiting the optimized operation of the PPM process. The recommendation from this part
of the study, connected to Finding #3 and Finding #4, is multi-fold. One action for recognizing and addressing these archetypes is to include the presence of and ways to address these in the recommended workshop. Longer term, these archetypes should be considered in any college or university wide PPM process that is in place or established.

**Recommendations for Future Research**

The intended view of this study was to examine the process employed by HEI leaders to identify, select and maintain the slate of projects within their organization/program, the maturity of that process and the role of systems thinking in supporting or hindering that process. In order to have any true effect to support the institution in ensuring that the projects completed contribute to the strategic mission in an optimal way, another level of analysis must be completed. One question that is necessary for sufficient evidence is to look beyond the systems thinking influences and project selection processes – and to explore the connection of these two themes to determine if the organization was able to realize its strategic mission in a value-added way – or not – based on what the findings from this initial study indicate. This would require research at the administrative level which is currently beyond the scope of this study.

A second recommendation is to undertake research to consider what the maturity of college and university level processes for PPM. The results of this study will provide additional implications for practice and next-tier short term actionable steps can be determined. A study of project portfolio management within the university is important for several reasons – first, selecting the right projects and planning them in the right way improves the probability the mission will be met. Secondly, the communication plan built into the process will ensure that stakeholders are aware of the project, its plan and current status, which support the development of commitment. Thirdly, the outcome is field-tested portfolio and initiation practices that are ready to be used within other higher education organizations.
These recommendations would be carried out through several implications for theory and research. An additional study would, as noted, be focused on how the university and college, at that holistic level, conduct PPM. Building on this would be to explore the current state process and tools of the university/college aligned to the PPM process, the tension between constraints and goals in the university system, and to determine the target PPM maturity level. The results of these studies should be handed off to future practice implementation. It is also recommended the current study continue its validation by increasing the study size of university persona included. Finally, to ensure maximum implementation of study results, it would be encouraged to balance organizational learning/systems thinking with PPM through an organizational change/transformation model.

**Recommendations for Future Practice**

Based on the analysis and findings, there are more opportunities to harvest the benefits of project portfolio management. As the first recommendations are implemented and the continued researched conducted, it will also be important to consider the application of the insights gained from these steps. A later practicum should be employed to determine the current and desired PPM maturity goals state and recommend further actions to attain this maturity level.

Through the application of theory, the focus of this work was to study the process HEI leaders apply in creating a portfolio of projects, factors that support or hinder this process, and the results of the process in terms of meeting organizational goals. The initial intent was to also create an optimal process and implement this within my selected population. In discussions with my advisor, my original scope was too extensive and needed to be narrowed for this study. This remains as a future scope of work. The other considerations that could be considered for a future post-graduation study; what project portfolio management processes would be recommended? What is the optimal method to implement these processes within a higher education institution?
How can these outcomes be packaged for integration within other non-profit organizations? These would connect to the doctoral study and extend it to provide the results that seem to be attainable. This allows the satisfaction of the scholar-practitioner model to be realized; the scholarship will be translated through a practitioner lens to provide value to target organizations.

**Assessment tool for PPM maturity.** One recommendation is to create and administer a tool to determine the current level of PPM maturity across the organization. The assessment tool would also be used to support the organization in determining its desired (near and longer term) PPM maturity level. The gap will be analyzed against the PPM maturity framework to create a continuous improvement plan to mature the process through organizational transformation.

**Continuous improvement plan.** Building on the previous action, the continuous improvement plan will inform the project work to move towards the pre-defined maturity state. It is recommended that the actions be prioritized based on value, effort and dependencies so that elements can be implemented nearer term and the value gained from these PPM processes while implementation continues.

**Continuous validation.** Key to successful PPM implementation is the actual realized benefits of the process, working to find the sweet spot of what is applied. As seen through the maturity conversation, higher maturity organizations continually examine their environment to ensure actions implemented provide value and to continue to identify other steps to mature the PPM process (Pennypacker, 2005). It is recommended to incrementally validate the PPM processes implemented through systems thinking and organizational learning.

**Conclusion**

The purpose of this instrumental case study was to examine the current state process that HEI leaders employ to choose - identify, evaluate, prioritize, balance, authorize - and maintain
their slate of projects, known in the project management industry as project portfolio management, and compare that process to benchmarks in PPM maturity to identify its strengths and potential opportunities to optimize the process to support meeting HEI mission and goals. By reviewing the organizations’ processes as told by the study participants, the current level of project management maturity was determined to best align with Level 1- Ad hoc. The study has concluded with short term recommendation actions to improve the portfolio management maturity within the organization. Recommendations for further research and longer-term practices have also been recognized.

The initial focus of this study was to understand the process of higher education leaders in selecting projects to be completed in support of his/her program. The shorter-term analysis allowed the conclusion that each HEI leader engaged in the study does use a process for project selection. Participants are aware of the support and challenges of the process and works to address them. There was no evidence of an institutional or college process - the lack of an organizational process, including shared governance, limit the optimization and efficiency of the process.

For the nearer term, there are implications for practice that can be applied. HEI leaders can apply the results of this study to guide their own selection process for projects. Whether analyzing their own current state process or building one from none, the experiences of what is effective, and not, for their peers will provide a foundation to create better practices for themselves – in their own way, to empower themselves. It is hoped that the longer range and more strategic action will elevate this to the institutional level so that all selected projects are focused towards the strategic mission in a holistic and collaborative way.

In a summary of PMI's Pulse of the Profession® research, Burba (2016) shared that high-performing organizations -- delivering 80 percent of projects on time, on budget and meeting
goals – tend to apply good practices in project, program and portfolio management. The study also reported that most organizations are not focused on improving their project management capabilities; only 1 in 4 using standardized practices across the entire organization. One reason noted for this is due to a lack of clarity around how project management helps organizations meet their strategic goals (Burba, 2016). The study (2016) concluded by noting that less than half of the respondents reported an effective alignment of projects to organizational strategy.

Morris and Laipple (2015) concluded from their study of 1515 university administrator’s leadership skills, preparedness for administrator roles and job satisfaction that there is a need for continued leader development and management training as well as mechanisms to support wellness behaviors. Though deans, directors and department chairs have broad decision-making responsibilities that affect faculty, students and staff, their lack of preparedness affects productivity and morale (Morris & Laipple, 2015). This study (2015) concluded that in order to operate effectively in a complex climate with decreasing budgets, there is a mantra to do more with less, requiring that goals be set, reviewed and modified regularly. Project portfolio management contains the process and tools to support administrators in meeting this recommendation.

Given these factors, it is important that universities work to select the right mix of projects and tactically execute them in the right way. It is intended that the outcomes of this study will provide the university with insight to create an optimized process, including tools and techniques to define and select projects. This will help the institution with the follow outcomes:

- Process to intake projects; necessary to create systematic way to defining projects, including alignment with organizational goals, objectives, scope, deliverables, summary budget and schedule, high-level risk analysis and stakeholder analysis
• Process to select projects for portfolio
• Process to balance portfolio
• Process to authorize portfolio and communicate to stakeholders
• Process to manage portfolio

The benefits to be achieved by employing project portfolio management will allow the organization to reduce redundancy in projects, prioritize projects, enhance communication, manage limited resources, and address complexities and interdependencies (Austin, et al. 2013).

By examining project portfolio management within higher education, it can be understood how to select and initiate those projects best aligned to meeting the organization’s mission. Specifically, deans can better work with HEI leaders to prioritize what projects should be considered. These strategic decisions can be converted by teams into tactical project plans, allowing the project managers and teams to communicate effectively with the Deans and to best understand how to deliver projects that meet these needs. Employing best practices to select projects allows better decision-making and delegation within the University benefiting staff, faculty, students, financial officers, and the stakeholders of projects and their outcomes.

All non-profit organizations can benefit from this study since an increased efficiency gained by delivering the projects that maximize meeting its vision and services, and saying no to those that do not, will allow them to deliver more for less and focusing efforts on the most critical projects. The audience may be extended to the greater non-profit world, including Board members, Executive Directors, Staff, Volunteers and those receiving services from the non-profit.

The results of this research fill a void existing in the current literature. As mentioned earlier in this study, PPM has not been well applied in the academic organization. The data from
this study provided a foundation for other studies that connect culture to higher education issues in project portfolio management.

From the application of theory, the focus has evolved to study the experience of HEI leaders in creating a portfolio of projects, factors that support or hinder this process, and the results of the process in terms of meeting organizational goals. The shorter-term implications of this work have allowed faculty leaders to understand the value of their current project portfolio management process, what contributes to its success and what impedes it realizing its full value. From this, it is hoped that these faculty leaders can identify small changes that will create a more strategically balanced portfolio of projects.

It is also intended that this awareness will allow other stakeholders to understand the reasons for the projects being undertaken; this should minimize some level of resistance to change. It is hoped that the findings from this study can generate process and tools that can be used by any non-profit organization to inform effective choices in what projects should be done while considering multiple strategic directives and limited resources.

It is suggested that the results will encourage more research and translation to application, in the non-profit, particularly higher education, organizations. As the non-profit environment becomes more complex, project management is a set of tools to help leverage the capacity by first selecting only the right projects and then completing them in the right way. The lack of sufficient literature addressing the role of project portfolio management in higher education offers a potential gap in current research and application. It would seem much could still be learned about project management’s role in contributing to both the efficiency and effectiveness of higher education institutions.

Project management is an applied practice that has been used to guide successful project delivery in the private and government sectors for many years. Based on the literature research, it
appeared that little has been studied around the use of project management within non-profit organizations (Wierschem & Johnston, 2005). This study (2005) noted that increased project management maturity in higher education could support the demands for greater efficiencies and support faculty in managing workloads. Further research could lead to a value-added project management model for faculty (Alpert & Hartshorne, 2012). A project management project selection model could increase appropriate application of project management within the university.

Therefore, the purpose of this study was to understand, examine, and investigate how faculty leaders within a university identify, select and manage their collection of projects. Chapter 1 provided an overview of the intent and purpose of the study. Chapter 2, the literature review, scanned the knowledge available. Chapter 3 explained the design of this study. Chapter 4 shared the results of the study, answering the central question from the data; providing a description of how this collection of seven mid-HEI leaders prioritize their projects. Chapter 5 used the data and resulting themes to provide recommendations, implications for practice and considerations for future research.
REFERENCES


Merriam, S. B. (2002). Introduction to qualitative research. *Qualitative research in practice: Examples for discussion and analysis, 1*, 1-17.


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APPENDICES

Appendix 1 – Unsigned Consent Form

UNSIGNED CONSENT DOCUMENT

In certain instances, an IRB may waive the requirement for the investigator to obtain a signed consent form for some or all subjects. In cases in which the documentation requirement is waived, the IRB may require the investigator to provide subjects with a written statement regarding the research.

Only the IRB can waive or modify the consent process. Researchers are not authorized to make this decision. When a signed informed consent is not required, this consent form may be given to participants to keep. Please modify the following information as necessary.

Northeastern University, College of Professional Studies:

Name of Investigator(s): Dr. Al McCready - Principal Investigator, Constance Emerson, Student Researcher

Title of Project: Shaping the Initiation and Prioritization of Initiatives in Higher Education: An Instrumental Case Study in how Higher Education Institution Leaders Describe their Selection Process

Request to Participate in Research

We invite you to take part in a qualitative research study focused on the process to select initiatives within your organization. The purpose of the study is to examine the current state process that Higher Education Institution (HEI) Leaders employ to identify, evaluate, prioritize, balance and maintain the slate of initiatives undertaken within their organization.

This letter will explain what participation in the study means, but if you have further questions, please ask. Your participation is voluntary and you do not have to participate if you do not want to. After you have read this document, and made a decision, please advise me.

I am asking you to be in this study because you meet the following criteria:

1. You work as a higher education leader
2. You have been identified as someone who participates in the identification, evaluation, prioritization, balancing and maintenance of the slate of initiatives undertaken within your organization.

If you decide to take part in this study, I will ask you to participate in a three-phases of interviews. My goal is for each of these interviews to be in person; however, it is possible that the first and third interviews will not be in person. When an interview cannot be held in person, it is my intention that it will be conducted over Blue Jeans.

- The first preliminary interview will be 10-15 minutes in duration, where we get a chance to have an initial conversation and where I explain the study and what participation means to you. This interview may take place in person, via telephone or other medium.
• The second is a 45-minute oral interview, preferably conducted in person. The interview will take place at a public meeting location that is comfortable for you. If by teleconference or telephone, I will ask you to choose a quiet location, where you are comfortable and can speak freely, uninterrupted during the interview. With your permission, I will record the interview digitally using an audio recording device and save it to MP3 format for later transcription.

• The third interview will take place once you have had an opportunity to review a summary of the recorded interview, so you may review and add any additional comments.

The following actions will maintain confidentiality of your responses:

□ Pseudonyms will be used
□ A password protected computer will house all data from the interview
□ The data will be stored in a password protected Dropbox account on this computer.

Before I start the interview, I will discuss the form. I will also ask for verbal consent while recording before the interview begins.

The possible risk, harm, discomfort, or inconvenience to you from participating in this study is minimal. Personal reflection, when thinking about and answering interview questions about the experience of selecting and managing your slate of initiatives may cause slight discomfort. Your personal identity as a participant in this study is unknown. Your part in this study will be confidential, and only the researcher on this study will see the information about you. No reports or publications will use information that can identify you in any way.

**There are no direct benefits to you for participating in the study.** However, your answers may help us to learn more about how initiatives are selected and prioritized within higher education institutions.

Your participation in this research is voluntary. You do not have to participate if you do not want to. Even if you begin the study, you may quit at any time. You may refuse to answer any question. There will be no direct benefit to you for taking part in the study; however, the information learned from this study may aid higher education leaders in how they select the initiatives to be completed within their organization.

**You will not be paid for your participation in this study.**

If you have questions or problems, please contact Constance Emerson at 603-770-5615 (voice mail is confidential) or by email at emerson.c@husky.neu.edu. You may also contact the Principal Investigator, Dr. Al McCready at A.McCready@northeastern.edu.

**If you have any questions about your rights in this research,** you may contact Nan C. Regina, Director, Human Subject Research Protection, 490 Renaissance Park, Northeastern University, Boston, MA 02115. Tel: 617.373.4588, Email: n.regina@neu.edu. You may call anonymously if you wish.

You may keep this form for yourself. Thank you.

*Connie Emerson*
### Appendix 2 – Interview Protocol

<table>
<thead>
<tr>
<th>Interviewer: Emerson, Constance</th>
<th>Shaping the Initiation and Prioritization of Initiatives in Higher Education: An Instrumental Case Study in how Higher Education Institution Leaders Describe their Selection Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note to Reviewer: The research problem of this study is to explore what current processes and practices are deployed by leaders in higher education institutions (HEI) to select initiatives to be completed by their organization. The study will consider how the HEI leader identifies, defines, prioritizes, balances and authorizes its portfolio of initiatives.</td>
<td></td>
</tr>
<tr>
<td><strong>Interview Protocol</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Formal Interview Objectives:</strong></td>
<td>Review purpose of study, tell participant how long it will take, and review Human subject statements.</td>
</tr>
<tr>
<td><strong>Introductory Statement:</strong></td>
<td>I want to thank you for taking the time to meet with me today. I’m a doctoral candidate at Northeastern University and this interview is part of my dissertation. Before we begin, I want to review a few things. First, all information capture will be kept completely confidential and anonymous. No identifiable information about you or your organization will be used, instead I will insert pseudonyms for you and your organization. Your role will not be identified. Second, I’d like your permission to video/audio record the session so that I can focus on our conversation. After the interview has been transcribed, I’ll give you a copy of the transcript to verify and edit if needed. Third, I want you to know that your participation is completely voluntary, and if at any point during the interview you want to stop – you may do so. I have had you sign an informed consent documenting that you understand and agree. If you’re ok with everything, then I’d like to begin the interview and turn on the audio recorder.</td>
</tr>
<tr>
<td><strong>Focus on the interview. This introductory statement provides an overview of the purpose of the interview in the context of broader study.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Prefatory Statement:</strong></td>
<td>My research explores how leaders in higher education go about identifying, selecting and managing the slate of initiatives they will take on year-to-year, and what the supports and challenges that impact that process. Ultimately, my goal is to assist higher education and other non-profit organizations to optimize the management of their portfolio of initiatives, which has been shown to lead to greater efficiencies and improvement in meeting strategic objectives. In order to do this, I need to start by having an understanding of current initiative selection and management practices are, which is the purpose of this study. I have just 7 main questions, so this should take us 45 minutes or less. These questions are focused on your experience of how the initiatives in your portfolio are identified and analyzed, how the portfolio is selected and managed. Overall, I am looking to explore: How do initiatives make it to the “approved to do” list? And, how do you know that the “approved to do” list is the right one?</td>
</tr>
<tr>
<td><strong>The central research question drives three major threads of questions that are detailed in #1 - #7 below:</strong></td>
<td></td>
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<tr>
<td>a. What are the sources of initiatives?</td>
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<td>b. What is your process of prioritizing initiatives to select which should be completed?</td>
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</tr>
<tr>
<td>c. What process is in place to manage the portfolio of initiatives over the course of the year?</td>
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<tr>
<td><strong>To start:</strong></td>
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<tr>
<td>Could you describe the types of initiatives that are undertaken within your organization?</td>
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</tr>
<tr>
<td>Could you give me a brief overview of one of these??</td>
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</tr>
<tr>
<td><strong>Core interview questions: The first few questions are mini-tour questions, using the Main Branches of a Tree concept. This first question helps to understand the first step in the process. The goal is to determine what-why-why-where-when-how projects are identified for consideration. There may be multiple paths in this process.</strong></td>
<td></td>
</tr>
<tr>
<td>Walk me through the process of how you go about identifying an initiative to take on? What are the sources and how are initiatives identified?</td>
<td></td>
</tr>
</tbody>
</table>
• Probe: Could you tell me what happens step by step?
• Probe: Could you go back to?
• Follow-up: What is your role in this process?
• Follow-up: Who else, if anyone, has a say in which initiatives are identified?
• Follow-up: Who can ask that an initiative be considered? Do they?
• Follow-up: What information is included/necessary with its submission? Format?
• Follow-up: What organizational processes/artifacts/sources are in place for identifying initiatives?
• Follow-up: Can initiatives be stopped in the process just as a matter of identification?
• Follow-up: What are the different steps in the process?

This question to help understand the next step in the process. Once candidate initiatives are listed, how is it determined if it is a good potential investment for the organization? There may be multiple reasons for selecting initiatives – market driven, regulatory, investment, future growth, etc.

Tell me how it is decided if an initiative makes sense to do or not? What factors do you consider to decide if an initiative is worthy/worth doing??

• Probe: What do you mean by?
• Probe: Could you provide an example?
• Follow-up: What governance constraints must be followed in selecting initiatives?
• Follow-up: How are initiatives compared to strategic goals of the organization?
• Follow-up: How do institutional/organizational strategic goals factor in; governance/political policies, budget.
• Follow-up: What project information is used for initiative consideration?
• Follow-up: What is the difference between a value-added initiative and one that should not be considered?

This next question is to help understanding how the strategic values of the organization are considered with the candidate initiatives to determine the portfolio of initiatives. This process step is balancing the project portfolio.

Once an initiative is identified and it seems to make sense, how is it decided if it can be done or not – given budget, resources, time, risk?

We call this group of approved initiatives your portfolio – this can be compared to your investment portfolio – for example, you may have a mix of stocks and bonds to manage risk. Let’s imagine you’re going to take on 5 worthy initiatives this year. How would you go about determining the mix of initiatives to pursue? Why do you pick the initiatives you picked? How do you decide you are doing the right initiatives? What is the criteria used to decide which of the identified initiatives are worth doing? How do you balance the viable initiatives to optimize strategic alignment/risk/resources?

• Probe: Go on, tell me more.
• Probe: Please share an example.
• Probe: Could you go back to?
• Follow-up: How important or unimportant is it that the initiatives complement or align with each other? Why?
• Follow-up: What mechanisms are used to balance the portfolio?
• Follow-up: What would you consider to be an ‘optimal portfolio of initiatives’?
• Follow-up: What criteria is used to balance the portfolio?
• Follow-up: How are the results communicated?
• Follow-up: What steps are taken to align with strategy and other initiatives?
• Follow-up: What constraints are faced in determining the mix of initiatives?

This next question establishes the decision making authority in the overall portfolio – what projects are approved for inclusion in the portfolio.

Once the recommended initiatives list is created, can you explain how it is approved/authorized and initiatives initiated? How do you know you are doing the right initiatives?
• Probe: Could you tell me what happens step by step?
• Probe: Can you provide an example?
• Probe: Can you tell me more about…?
• Follow-up: How does the final portfolio align to your recommendation? What affect does this have on your role as faculty lead?
• Follow-up: What happens if a recommended initiative is rejected?
• Follow-up: What is the outcome of this selection in meeting organizational goals? How is it known it meets the goals?
• Follow-up: What is the governing bodies reaction to the recommended projects? How do you feel given their reaction?

This next question helps establish the on-going dynamic of the portfolio process. Its stability – or lack thereof – may suggest insights for improvement in the process.

Throughout the year, once a portfolio is established, how are initiatives moved in and out of the portfolio? How do you know you are continuing to do the right initiatives? Include what situations arise? Who can recommend this? What are the steps?

• Probe: Could you tell me what happens step by step?
• Probe: Please share an example
• Follow-up: What can cause the portfolio to change once approved?
• Follow-up: How is this decision made/ communicated?
• Follow-up: Who are the decision makers?
• Follow-up: How do folks feel when initiatives are removed from the portfolio?
• Follow-up: What is the impact to the organization?
• Follow-up: How is it determined if the completed portfolio met the needs of the organization?

This next question brings the concept of systems thinking into the project selection process. It shifts the focus to how the holistic nature of the organization supports and impedes the portfolio process.

What factors support you in selecting an optimal portfolio of initiatives? What factors impede you in selecting an optimal portfolio of initiatives? What are the internal influencers to this process? What are the external elements that must be adapted to?

• Probe: Go on, tell me more.
• Probe: What do you mean by…?
• Follow-up: What opportunities are there to optimize project definition and selection process?

This last question looks at the interviewee’s own insight into the initiative selection process. It shifts the focus to the HEI leader and how he/she feels the process does or does not work and what its opportunities for improvement are.

Given your experiences with the process, what feels easy about the process? Retrospectively, how effective would you consider this process in supporting the organizations strategic goals?

• Probe: Go on, tell me more.
• Probe: What do you mean by?
• Follow-up: What opportunities are there to optimize project definition and selection process?
• Follow-up: What are the hardest parts about the process?
• Follow-up: What makes you proud about how you go about doing this?
• Follow-up: What’s most frustrating?
• Follow-up: What is your biggest worry/ what concerns you most?
• Follow-up: What contribution do you feel your projects have to the bigger picture of the organization?

Closing the Interview:
I am finished with my questions at this point. Is there anything that we did not discuss that you think would be important to add at this time? Do you have any other questions for me? Next steps, I’ll be preparing your transcript no later than <insert date>. I’ll send you an electronic copy to review, edit, validate. And then, we’ll agree on how you’d like me to destroy the audio. I thank you again for spending this time with me. Your participation in this practice interview has been very helpful in my development as a doctoral student. I hope the process was rewarding to you too!

<table>
<thead>
<tr>
<th>Big Q (Conceptual Question)</th>
<th>Recruitment Question</th>
<th>Little q (experience –near) question</th>
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</thead>
<tbody>
<tr>
<td>The research problem of this study is to examine how project portfolio management is used to support non-profits, specifically higher education institutions, ability to deliver services through the successful selection of the correct mix of projects.</td>
<td>My research topic is to examining project portfolio management within higher education. The intended result of this study is to determine how project portfolio management supports a higher education institution’s ability to meet its strategic goals by integrating project selection process and tools while considering the challenges of the higher education institution. I am doing a study of what is the process used by HEI leaders to identify and maintain their slates of projects I’d like to talk to you about how this works in your organization.</td>
<td>I’d like to hear about your experiences in selecting projects – or – Suppose I have a project idea – how would it get decided if it was to be done or not? Could you step me through the process? – or – Can you tell me how projects make it to the “approved to do” list? What are the easiest parts? What are the hardest parts? What are the critical decision points? What are you proudest about your process? What is your biggest worry about your process?</td>
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</table>
## Appendix 3 – Code/Clusters

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Cluster Description</th>
<th>Codes in Cluster -</th>
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</thead>
<tbody>
<tr>
<td>Strategy</td>
<td>Strategy defined</td>
<td>Source of Projects</td>
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<tr>
<td>Identify/ Categorize</td>
<td>How are projects identified? What is the process and sources?</td>
<td>Inventory</td>
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<td>Sample Projects</td>
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<tr>
<td></td>
<td></td>
<td>Identification of Initiatives</td>
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<tr>
<td>Evaluation/Selection</td>
<td>How is it decided if a project is worthy - that it should be considered for inclusion in the portfolio?</td>
<td>Selection Criteria</td>
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<td>Select Projects for Inclusion</td>
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<td>Alignment</td>
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<td>Conflict in Alignment</td>
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<tr>
<td>Prioritization/ Balance</td>
<td>How is it decided what projects can be done?</td>
<td>Constraints</td>
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<td>Balance</td>
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<td>Capacity</td>
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<td>Optimization</td>
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<tr>
<td>Portfolio Authorization</td>
<td>What is the approval process for the portfolio?</td>
<td>Sponsorship</td>
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<td>Authorize</td>
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<tr>
<td>Portfolio Oversight</td>
<td>Once the portfolio is approved, how are projects moved in and out of it?</td>
<td>Measurements</td>
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<td></td>
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<td>Manage Portfolio</td>
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<tr>
<td>Process – Challenges and Supporting Factors (System Improvements)</td>
<td>What challenges do you face in creating your portfolio of projects?</td>
<td>Cross Department/silos</td>
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<td>Culture</td>
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<td>Barriers</td>
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<td>Governance</td>
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<td>Inefficiency/efficiency</td>
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<td>Opportunities for Improvement/Future</td>
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<td></td>
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<td>Challenges in Selecting Portfolio</td>
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<td>Opportunities for Improvement</td>
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<td>Supporting factors in selecting portfolio</td>
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<tr>
<td>Results PPM</td>
<td>How is it known if the right projects were completed?</td>
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<td>Collaborate</td>
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<td>Right Projects?</td>
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<td>Benefits Realization</td>
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<td></td>
<td>How do you know an optimized portfolio?</td>
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<td>Strategic Alignment</td>
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## Appendix 4 – PPM Maturity Model Assessment

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<tr>
<th></th>
<th>Jack</th>
<th>Cary</th>
<th>Ursa</th>
<th>Pam</th>
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<th>Sam</th>
<th>Lillian</th>
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<tbody>
<tr>
<td>Portfolio Governance</td>
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Based on James Pennypacker (2005) model