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Using Agile Strategies to Improve Project Success Rates

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Abstract

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MS, University of Maryland, University College, 2009

BS, Park University, 2005

Doctoral Study Submitted in Partial Fulfillment

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Abstract

Project failures can be costly to businesses, but on average, program managers' (PMs') success rates for managing information technology (IT) projects is less than 35%. Organizational cultures struggle to adapt to agile project management (APM) that provides stakeholder flexibility for dynamic environments. Grounded by project management theory, the purpose of this qualitative multiple case study was to explore strategies project managers use to reduce IT project failures. The participants consisted of nine project managers in the northeastern United States with APM experience managing successful IT projects. Data were collected from virtual semi-structured interviews and journal notes. Ten open-ended interview questions explored PM's successes and challenges in managing projects within the workplace. Data were analyzed using thematic analysis. . Respondents spoke of three high-level themes of communications, cultural dependencies, and effective planning. Key recommendations to PMs and business managers are to adopt APM elements within stakeholder culture, training, and processes. The implications for positive social change include the potential to create jobs for business growth and stimulate the local economy.

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Dedication

I would like to thank fellow doctoral learner, Gary Zack, for always pushing me to write, continue research, and keep motivated while waiting for chair feedback. This process has made me appreciate keeping both myself and colleagues accountable to meet expected timelines. I would also like to thank Dr. Douglas Gilbert for guiding me through the qualitative study elements, and Dr. Karen Wallace for her constructive criticism, a keen eye for success, and being part of my team.

Finally, I would like to dedicate this doctoral study to my wife, Mandy, and our children, Maya and Alex. Without their unwavering support, I could not have completed this unique journey. My advancement in higher learning is teaching my children that anything is possible at any age. Thank you all. I love you.

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Section 1: Foundation of the Study

Successful project management is supported by managers who are knowledgeable and energized to apply agile management in information technology (IT) projects. Managers can champion initiatives to educate the workforce in process methodologies, culture, and foundations of actions (Sirisomboonsuk et al., 2018). The impact of not applying these initiatives is costing companies billions of dollars because project managers (PMs) have challenges of maintaining projects on-track for cost, schedules, and performance (Langley, 2019). The research goal was to conduct interviews with PMs and propose project management elements for business success.

Background of the Problem

Over 55–75% of IT projects fail, costing businesses an enormous amount of capital (Standish Group, 2021). The application of project management in a distributed, remote workforce is making it harder for PMs to use an effective application of the right project management method. The evolution of project management methods, namely agile methodology, is being applied by PMs to reach IT project success. The considerable challenges in managing various project phases are requiring businesses to take a new approach to managing projects.

Problem Statement

IT PMs face challenges in communication, operational setbacks, management buy-in, and cultural or mindset differences resulting in project failures no matter what industry (Bond-Barnard et al., 2018). These failures are costing midsize IT companies billions of dollars each year on projects that are not reaching full, operational maturity

(Varajão et al., 2018). The typical success rates of projects using agile processes (54%) and waterfall (35%) are forcing companies to look for better methodologies to be successful in large-scale projects (Khalil & Kotaiah, 2017). The general business problem is PMs are experiencing a high level of project failures due to not having the expertise to deliver projects from customer requirements to operational delivery. The specific business problem is that IT projects are failing due to PMs not exploring successful agile methods to increase project success.

Purpose Statement

The purpose of this qualitative multiple case study research was to explore project management methods that PMs are using to reduce project failures. The target population included nine Northeastern regional PMs and 20 survey respondents across three to five IT companies that have successfully implemented agile methods to reduce project failure rates. The population pool is large enough to increase research validity and included IT PMs who are applying agile project methods to influence project success. The findings of this study could contribute to positive social changes through the adaption of successful agile methods into training, leader behaviors, and individual growth. The promotion of employee's professional and personnel prosperity can extend concomitant benefit into the local community economies through increased tax revenues.

Nature of the Study

The nature of this qualitative, multiple case study was to explore techniques used by project managers to avoid agile product failures. I reviewed three research designs of quantitative, qualitative, and mixed-method approaches (Creswell & Creswell, 2017). I

chose a qualitative research methodology to explore project failures because I wanted to capture PMs' experiences. The observed candidate viewpoints and experiences help capture the *what*, *how*, and *why* agile project management (APM) methods are predominately successful in IT businesses (Gaya & Smith, 2016). A quantitative method was not appropriate because it focuses on examining and quantifying numerical data elements to create hypotheses to examine (Porcellato et al., 2016). The mixed-method design combines both quantitative and qualitative methods to understand the study from both numeric and from data that cannot be measured or counted.

I considered several qualitative designs and concluded that they would not address the study's purpose of determining which APM methods PMs are using to improve projects' success rates. The ethnographic design was not chosen because the design went beyond exploring organizational culture and employee behavior rather than focusing on an adaption of APM practices by PMs to improve project success (see Miha, 2019). The phenomenological design, which focuses on the personal meanings of individuals' experiences was not suitable to the subject of this study to explore those PMs methods who had successful agile methods that mitigated project failures. I finally chose a case study to capture each respondent's life experience, which was consistent with my research study blueprint.

Research Question

What agile project management methods are PMs using to reduce project failures?

Interview Questions

The interview questions for answering the research question are:

1. What type of project failures have PMs experienced?
2. What agile steps did you find critical for the project's results?
3. How has management changed organizational processes to adopt agile best practice approaches to project schedules?
4. What success criteria apply to each performance monitoring process within projects?
5. How are PM processes changing while using agile methodologies?
6. Suppose your project is not on a schedule. What agile project management actions would you take to get the project back to a successful state?
7. What agile methods enable customers to rate projects successful?
8. How are cost and accountability factored into improving project success rates using agile methods?

To further extend project methods questions three and six, the interviewer follow-up questions could explore successful traits being used in project successes.

1. If both waterfall and agile methods have been used in the past, what are the differences you experience in using both?
2. Based on your experience, how, if at all, did the adoption of agile improve organizational culture?

Conceptual Framework

Project Management Institute's (PMI) published Project Management Body of Knowledge (PMBOK), 7th Edition, served as the conceptual framework for this study (Project Management Institute, 2021). PMBOK assists PMs by defining 12 principles that comprise concepts, terms, and approaches to enable functional project designs (Frederico, 2021). The newer agile PMBOK framework focuses on project characteristics, industry, requirements of the stakeholders and the organization. This allows project designs to be project management agnostic, but tailorable to project success and value delivery to the customer. The alternative design approaches allow PMs the flexibility to design projects based on business objectives and PMBOK elements.

The PMBOK framework was selected for this study because it approaches the project as phases and allowed research on which stage and why IT projects are failing. The collection of PMBOK best practices is supposed to be the industry standard. If the standard needs to be updated based on newer project methodologies, then research can pinpoint where change is needed to reduce project failures.

Operational Definitions

Agile methodology: The incremental method to outline project activities into small activities that combine into the overall project (Malik et al., 2019).

Information technology (IT) projects: The implementation of a new or existing system to meet the requirements of the organization (Pool et al., 2019).

Integrated lifecycle management: The philosophy to integrate processes to manage cradle to the grave flow of information to deliver products and services (Bicocchi et al., 2019).

Managers: PMs who operate in agile project management focus on integration into organizational culture, processes, and employees (Malik et al., 2019).

Organizational culture: The business atmosphere that supports organizational priorities and strengthens employee motivation to succeed (Heilmann et al., 2020).

Scrum project: The agile process framework that divides large projects into smaller, 2-week deliverable sprints, for small ten or fewer members to deliver on-target products to customers (Darwish & Megahed, 2016).

Waterfall methodology: A sequential project with seven milestones that rely on previous stages to be approved and completed before moving on to the next stage (Van Casteren, 2017).

Assumptions, Limitations, and Delimitations

Assumptions

In qualitative research, assumptions are factors that a researcher assumes will occur during the study without a substantiated proof (Platzer, 2019). In this multiple case study, several assumptions were identified. The first assumption is that any findings can be replicated with similar interview questions. The second assumption is that interviewee PMs removed all bias or prejudice that could jeopardize the validity of the research. A final assumption was that interviewees came from independent organizations who do not have a tied relationship with another organization or organization to organizational

relationship that could be swayed by inherent organizations' culture and processes. To help offset this, the interview questions were tailored to enable PMs the flexibility to answer outside current assignments and apply previous experience to the current challenges.

Limitations

Limitations are constraints that limit research validity or accuracy (Strickland & Stoops, 2019). One challenge with exploring agile management methods is PMs who are not well versed in agile methods. This limited knowledge of agile restricts the study because PMs who do not have a similar understanding of agile methodology would not fully grasp the interview questions or context in which they applied agile methods (Bergmann & Karwowski, 2018). However, I selected candidates based on PM assignments that exemplify agile experiences rather than basic project process execution.

Not all respondents had similar interpretations of the study's operational definitions. The inconsistency of knowing what APM is during the interview may have impacted the study results. Some respondents may have overthought the questions and missed the overall objective of open-ended interview questions to explore experiences. The pre-survey study's candidate pool selection could be a limitation because interviewees may skew data sets due to organizational and cultural-based perceptions.

Delimitations

Delimitations are the definitions that researchers decide to set as the boundaries or limits of their so that the study's aims, and objectives do not become impossible to achieve (Theofanidis & Fountouki, 2018). The delimitations of extending data boundaries

are fixed by including categorical data collection from direct interviews and web surveys (Gaya & Smith, 2016). The study focused on a discrete geographic segment of agile PMs who operate in government sector and within the northeastern United States. The candidate segmentation is a delineation factor because of differences in project lifecycles and the varying policy differences between the government and commercial industry IT industries. From within industry-specific domains, the boundary of the research is expanded beyond agile methods used in IT projects rather than including methods that were exercised in software development cycles. The thematic analysis helped fill the literature gap and contributes to the body of knowledge in agile project management.

Significance of the Study

The significance of this study is that IT project failures cost companies billions of dollars by not delivering products on time, within scope, and within budget (Langley, 2019). Business leaders are continually seeking ways to reduce revenue loss and increase profits by improving organizational processes (Tortorella et al., 2018). The importance of this qualitative, multiple case study was to explore project management theories that have generated newer agile methodologies that apply to ever-changing organizational cultures. The COVID-19 pandemic caused businesses to change the way they operate and communicate with stakeholders. Thematic analysis highlighted critical areas for business improvement that can potentially improve project success rates across similar, small-IT companies. Applying agile methodologies can provide leaders' superior alternatives to approach IT projects differently based on customer requirements and project goals (Cavaleri & Shabana, 2018). Using or adapting the study's results could also enable

business echelons to review where problems may exist internally and resolve issues through education and process improvements.

Contribution to Business Practice

Project failures are concerning for clients, funding sources, and organizations trying to match requirements with product delivery (Da Silva et al., 2019). This study can extend existing research on social change impacts due to organizational changes resulting in successful IT projects. The study's findings could provide PMs with agile methods to improve business projects' success rates. Without successful project ventures, leaders may be unwilling to create new opportunities for company growth, excel in new job hires, or increase the company's ability to benefit communities' economic growth (Bezdrob et al., 2020). The findings of the study can aid PMs in using best practices, highlight training opportunities, and also influence business leaders to improve processes to increase overall project successes.

Research findings can also influence social changes outside company structures by optimizing external good and servicess necessing for businesses to have internal project successes. The increase awaresness of best practices in managing time and resource tasking can directly increse the effectiveness of supply chain management processes (Frederico, 2021). The segmentation of work flows into a consolidated forecast scheduling plan can aide supply chain contributors such as (a) external shipping contractors, (b) end-user product trainers, and (c) external project managers who will integrate respective sprint deliveries to product schedules (Bicocchi et al., 2019).

Customers benefit from supply chain effeciencies by reduct product costs and speed of delivery.

Review of the Professional and Academic Literature

The literature review provided a historical study of various project management methods that businesses leverage to successfully manage projects based on cultural and industry demands. Icollected multiple PM approaches (a) project methodologies, (b) PMBOK framework, (c) agile management, and see how each method applies to project successes or failures. The literature review structure was organized into a chronological mapping of project management theories that showcased adaptation out of industry's demand to meet cultural and economic changes.

The foundation of the literature builds a source database around key-search phrases of project management theories, such as waterfall and agile transition found in online databases like Google Scholar, Walden's databases of EBSCOhost, and ACM Digital Library. The limitations of Google Scholar's artificial intelligence search engine made me move away from Google Scholar because its deductive learning ability began to tailor searches based on previously searched criteria. This query constraint limits the scope of queried documents. Many peer-reviewed journals focused specifically on positive and negative findings of previous search criteria showing waterfall in software development projects, agile in IT projects, and some trending research on adopting a blend of both strategies in business applications. The research included themed challenges arising from using waterfall methods and the driving necessity to use a modern hybrid or complimentary agile method to improve project successes. The

rationale was to collect relevant scholarly resources and explore previous literature to garner best practices, synthesize various viewpoints, and outline strategies that support the contingency model theory approach to agile methods used in business projects.

The scholarly research consisted of 191 references that explore project management transformations from early adopted development lifecycles into adaptive project designs being used in the IT, manufacturing, and healthcare industries. Over 69% were peer-reviewed journals, and 81% were published within the last 5 years of this study (see Table 1). To formulate the driving motivator for PM methods in the workplace, the majority of collected sources (85%) focus on the comparison between PMBOK and agile designs to provide a high level of relevance and timeliness of the research. The extensive collection of literature encompasses both positive and negative experiences to expand upon business challenges and ambiguities PMs are facing when applying project management methods to projects.

Table 1

Literature Review Sources

Reference type	Total	< 5 Years	> 5 Years	%Total < 5
Peer-reviewed journals	131	106	25	81%
Books	14	11	3	79%
Non-peer-reviewed journals	46	39	7	69%
Total References	191	156	35	82%

In this literature review, I will begin by defining what is a project is and highlight success and failure attributes for each outcome. The foundation of this study is grounded by outlining various project management theories to include PMBOK published theory from PMI and agile methodology. The chronological review of project management

approaches aides the research in gathering a holistic view of PM experiences across multiple domains. The economic and business changes required PMs to take different approaches to project designs.

Definition of a Project

Projects are considered temporary efforts conducted on behalf of the organization to deliver a product or service that have a beginning and an end (Aliyu, 2012). Project management processes were an informal process until the mid-century when PMI began capturing reoccurring processes, and in 1984, published the PMBOK guide (Frederico, 2021). PMs used this guide to structure projects into five distinct elements (a) initiation, (b) planning, (c) execution, (d) monitoring, and (e) closure. These PMBOK elements assist PMs with skills necessary to navigate through project planning lifecycles of planning, organizing, directing, and controlling a project (Křečková et al., 2020). The PMBOK framework is not a guaranteed successful framework but does give PMs available options for project designs to meet organizational goals.

Project management refers to the wide range of ongoing activities that are carefully arranged to reach a desired end-state of completion (Pires et al., 2020). PMs, those who are managing day-to-day project activities, require both technical and interpersonal skills to manage both project teams and management processes (Woolf et al., 1968). PMs are the center of managing projects and setting expectations for leadership (Krahn & Hartment, 2006). The business application of using PMI's published PMBOK elements enables leaders to have a competitive advantage by using innovative initiatives (Langley, 2019). These learned traits through various project management

methodologies drove continued research on which processes were successful. The definition of project success was critical to tailoring research data as many organizations had different perceptions between success and failures.

The fast-paced changing business culture requires PMs to be flexible and cognizant of situations that may cause declines in project successes. Historical literature captures project management theories that achieved minuet 35% success rates in tackling designs made for incremental design structures (Khalil & Kotaiah, 2017). Cullen and Parker (2015) noted a project management triangle, or *iron triangle*, as a motivator for PMs to balance between project budget, deadlines, and scope. The three points of the iron triangle have shown an impact on one another and on the overall project (Berssaneti & Carvalho, 2015). The iron triangle framework influences business goal design and creates a working culture to foster diversity between balancing time, costs, and project requirements. These variations allow stakeholders to define what projects success criteria looks like and depending on availability of resources.

Project Success Criteria

The combination of skilled PMs with multiple project management methodologies is instrumental in project successes (Krahn & Hartment, 2006; Njogu et al., 2018). Projects are more inclined to be successful when PMs (a) plan, (b) develop, and (c) deliver project designs based on organizational goals and customer requirements (Kerzner, 2017). PMs must have the necessary skills to manage all facets of assigned resources (Krahn & Hartment, 2006). Thus, training becomes a crucial factor in preparing PMs' ability to leverage successful PM methodologies to influence project outcomes

(Anantatmula, 2015). Further, communication is the key for PMs to share challenges and resources requirements as both small and large projects can be complex. Projects have multiple variants of both size and complexity that can make the PM task challenging.

The term *project success* has various definitions across multiple industries based on organizational and customer goals (Zahra et al., 2014). Project designs are critical for communicating project critical paths and challenges. Business success criteria can be matched to project design requirements (Blaskovics, 2016). Leadership can enable project success by understanding the PMBOK framework and other PM methodologies to influence organization processes (Serrador & Turner, 2015). By understanding previous lessons learned from previous methodologies, PMs can plan for known process challenges. The correlation between customer acceptance and organizational success criteria dictated the success or failure of the project. The various stakeholder perceptions of what equaled project success resulted in businesses individually defining what constitutes a project success or failure.

Key Reasons that IT Projects Fail

Over 55%–75% of IT projects fail, costing businesses an enormous amount of capital (Standish Group, 2021). Project failure rates vary among businesses based on organizational culture, stakeholders, and economic status (Stock et al., 2007). PMs who have the talent can understand the challenges and correct project designs based on the inherited challenges to the organizations (Shivakumar, 2018). Project designs are critical in structuring projects for success (Assaf & Al-Hejji, 2006). The three biggest challenges

to project success are (a) unclear goals, (b) volatility, and (c) lack of planning (Sudhakar, 2016).

Unclear Goals

A clear project goal enables PMs to have a defined, specified outcome with stakeholders. Clear goals with defined communication channels also provides a roadmap on how projects should be executed to reach success (Smith et al., 2020). The roadmap also allows businesses to evaluate completed projects to identify failed and successful processes for future business success (Antomarioni et al., 2021). Project designs using clear goals help PMs create project structures that reduce failures from the start.

Project success criteria includes specific, measurable, achievable, realistic, and time bound (SMART) goals to garner project success (Lipovetsky et al., 1997). Without clear expectations, stakeholders are unclear on what project success looks like to the organization and its customer (Fortune & White, 2006). PMs must leverage their experience and skills to adjust project designs to include SMART goals for both end-product and each milestone during development. Even though unclear goals are a major contributor to project failure, it continues to plaque PMs due to changes in leadership direction or project scope changes.

Volatility

Project volatility is the result of not knowing what is next to change or influence the change of cost, schedule, and product design (Tariq et al., 2020). Volatility is the frequent or individual instances of a rapid or unpredictable change towards a project (Ajmal et al., 2019). For example, PMs can leverage metrics to forecast the probability of

unknown and known changes that could affect the project development (Brownless & Gallo, 2010). Project designs that do not include adjustments for volatile processes changes, resulting in an overall perception of lack of planning by the PMs.

Lack of Planning

Lack of planning occurs when there are not enough allocated resources to a specified task (Miller et al., 2004). PMs who are not deliberate in their design approach or its execution often miss critical steps or fail to communicate changes with stakeholders (Thiry, 2002). PMs are empowered to take necessary steps to keep projects on track to produce known deliverables. If tasks are not SMART or ambiguous, it is their role to go back to leadership to validate project expectations and keep stakeholders abreast of any changes. Experiences or training in project management methodologies enable PMs to have the skills to adjust projects when necessary. The combination of all three challenges drive businesses to research better management theories to improve project designs that resulted in mitigating each challenge area.

Project Management Theory

The similarities in applying project management framework across multiple industries drove Frederico (2021) to explore his coined term, *Industrial 4.0*. He explored both PMI's previous baseline framework of using functional area methodology to PMI's radical change in 2021 of using a principle-based, value system. PMBOK recognized that projects are not just processes but also a holistic approach to ensure value delivery through 12 guiding principles. Using PMBOK's newer model of eight performance domains and 12 principles helps PMs organize project designs based on collaboration,

quality, and leadership (Zaheri et al., 2022). Project management is the process of applying PMI's functional areas to enable project success. The understanding of project management best practices enable PMs to better position themselves and the organizations (Kerzner, 2017).

Project management methods are changing to meet organizational cultural changes, but also the changes in project objectives based on customer requirements (Defoe, 1961). PM theories help organize and build project workflows through structured designs. A functional approach, first created by William James in 1890, described a process-oriented approach to take conscious action to achieve the desired end-state (Herek, 1987). Dhir et al. (2019) also offered alternative PMBOK approaches to failing projects experiencing schedule slips and advanced schedule delivery and improved pinpointing customer requirements. Further, Darwish and Megahed (2016) suggested using an agile process approach by prioritizing accepted tasks into similar groups and delivering smaller, successful assignments in customer-accepted schedules. Lyngso's (2015) strategy management model reflects PMBOK contingency traits by exploring how PM methods influence existing organizational structures and contextual conditions (see also Tortorella et al., 2018). Combinations of newer PM frameworks that support both traditional and modern management approaches can change organizational cultures and principles (Bergmann & Karwowski, 2018). Critical processes of successful frameworks used variations of PMBOK elements to adjust project designs.

PMBOK in IT

Projects fail for many reasons, but it's up to PMs to manage project processes to deliver successful projects. According to Ko and Kirsch (2017), project successes are predominately dependent on PMs ability to manage each facet of project development. To enable project success, PMI developed version 7 of the PMBOK approach, which brought radical changes to how projects are perceived and orchestrated across 12 principle-based efforts to aide in business value rationalization. These 12 principles include: (a) stewardship, (b) collaboration, (c) stakeholders, (d) value, (e) systems, (f) leadership, (g) tailor, (h) quality, and (i) complexity (Fridgeirsson et al., 2021). The IT industry's project examples included categories of software, hardware, and acquisition (Rosenberger & Tick, 2018). These project examples include regulatory and risk mitigation controls within project designs to protect vital data and maintain system assurance. However, due to project complexity and high-project fluctuation, IT projects to maintain a low success rate requiring PMs to seek alternative solutions for success. Through PMBOK, PMs leverage knowledge areas to mature newer design models, to deliver smaller, incremental sprints to meet customer expectations.

Agile Management

The Agile Project Management (APM) framework focuses on project processes that directly increase project success and ultimately, business return on investments (Pukdesree, 2017). (Lyngso's (2015) APM research explored three business areas: "(a) organizational, (b) processes, and (c) solutions to improve communication, collaboration, and organizational change". These three focus areas are important because it creates a

research baseline to extend previous SDLC waterfall shortfalls and targets processes that increase the return value within these three areas for success. Henkel and Bourdeau (2018) expanded Lyngso's research to include areas of leadership structures, relationships, and processes that were also triggers for enabling project success using adaptive APM. The expansion of traits expands the aperture of research for data collection.

Studies of Bezdrob et al. (2020) and Gupta et al. (2019) concluded that failed IT projects that were attributed to improperly applied project management methods resulting in time, money, and resource loss. Fuchs (2019) found tangible results that organization awareness of the need to change and employee approach to project designs was crucial to project success. Success measures both whether PMs can deliver the full project scope or deliver on time within customer expectations. Bergmann and Karwowski (2018) found that successful agile projects focus on customer interaction, improved quality, reduced time gaps, and shortening development time to reduce costs and deliver a product or service efficiently and quickly. The gap between current business processes and textbook agile approaches yields a value proposition matrix for businesses to explore.

Rapidly changing project requirements and time-based deliverables fused with dynamic organizational cultures and employee attitudes require PMs to utilize innovative methods to react to achieve project success (Bresciani & Comi, 2017). Kim et al. (2017) explored macro-level studies evaluating cultures and processes impact on software and IT project success. Within the past five years, studies focus on micro psychological levels of organizational culture's variability, continuous improvement, and customer focus traits

that impact PMs approach project designs (Penix et al., 2020). The tailoring of agile processes enables PMs to manage projects using sequential or incremental phases to garner customer acceptance. The growth of virtual societies and the need for enterprise-level project management practices postures further research into what is next after agile. The competitiveness of corporate atmospheres requires companies to posture for rapidly changing environments and customer requirements.

Extended research into various methodologies yields the advantages and disadvantages of each depending on organization cultures, approaches to projects, and PM experience levels (Bogdanova et al., 2020). The early pioneers of project methods focus on improving software coding within project development. More recent PMs explore project efficiencies and improve communications in IT projects by bridging PMs and requirement owners closer together (Mac Donald et al., 2020). The interconnection between digital businesses requires that leaders shape technology to serve an opportunity and respond to adversity (Bawany, 2020). The pandemic demonstrates that leaders need to execute in a chaotic business environment. Business continuity is one of many complex business challenges creating unanticipated market turbulence. The exploration of each methodology provides IT executives with strategic planning tools and techniques to turn complexity and chaos into real strategy execution initiatives for current atmospheres.

The COVID-2019 pandemic implemented close-proximity restrictions, which force PMs to manage projects differently by using, distributed methods to communicate tasks and deliver products on schedule to stakeholders (O'Connell et al., 2020). The

unique project design requires PMs to look outside the box and develop new strategies to manage tasks (Beaumont et al., 2017). Balashova and Gromova (2017) described project changes as revolutionary for antiquated processes to be forced into change by pandemic restrictions. APM required businesses to couple organizational processes with technology, to generate newer methodologies in garnering project success.

PMBOK recognized that new methodologies needed to be incorporated into project manager's available resources to manage projects. PMBOK updated its 1981 framework, marking a 20-year anniversary from its inception by drastically changing recommendation for project success (Verzuh, 2021). It is recommended by PMBOK that project managers use a multitude of deliver methods to manage projects. The new changes incorporate a value-based system using guiding principles to improve overall business value rationalization (Zaheri et al., 2022). The newer PMBOK design aligns to data themes found within this study. The emphasis builds on previous methodologies by focusing on improvements in the areas of communication, teamwork, and training.

Project Methodologies

The chronological review of literature captures how multiple industry domains are changing the way businesses apply project management methods to project designs based on organizational requirements. Herbert D. Benington expanded the manufacturing and construction industry structures in 1956 and implemented a software engineering presentation promoting a similar linear and sequential process, called *waterfall*, to orchestrate software development in computer mainframe processes (Petrcek, 2019). The proposed five-step phase model encompasses steps of (a) planning, (b) data analysis, (c)

logical & physical designs, (d) implementation, and (e) maintenance that created a linear, sequential process and never repeats a step until project completion (Sudrajat et al., 2019). A linear approach method was important to recognize because once all five steps were accomplished, the product should be what the customer was asking for in the end.

In1958, the Navy applied the assembly-type production to create a mainframe software spiral called, project evaluation and review technique (PERT) technique, which focused on outlining and tracking project tasks to meet project quality, budget, and time deadlines (Woolf et al., 1968). The differences between software and assembly-type production were the focus areas and development structure (Van Casteren, 2017). Walker and Kelly's critical path method (CPM) design helped to analyze large mainframe process steps (Aliyu, 2012). The traits extracted from CPM and PERT designs created a baseline for future project designs to be tailored to their own specified domains. Project management is evolving rapidly to meet organizational or customer changes.

The partial success of mainframe design structures drove Dr. Winston W. Royce to apply a similar sequential step process and create a *waterfall* System Development Life Cycle (SDLC) (Almeida & Simões, 2019). The early SDLC waterfall software development models were labeled as code and fix, code-some-more, fix-some-more because if requirements changed or errors occurred (Abdullahi & Bagiwa, 2019). This fallback process of retesting left a high risk and uncertainty because of the multitude of changes before project completion. Due to the sequential development process and changes throughout the lifecycle, added delivery time was longer than expected. This lag

time left clients wanting projects to go faster to meet business demands and opted to find alternative delivery approaches that enable successful, smaller project packages.

Research and application of project-oriented processes transform iterative SDLC methodologies into task rapid, focused, and outline processes that aim to increase stakeholder awareness (Alahyari et al., 2017). Agile methods provide PMs the versatility to similar SDLC processes to adaptable strategies that optimize product delivery (Srivastava et al., 2017). Using the grounded theory approach, Jovanović et al. (2017) explored the core activities that enabled organizational and project acceptance. The collected traits highlighted the need for frameworks that outlined specific delivery schedules and task assignments to system and product owners.

The shortcomings of sequential waterfall methods created a need for a more tailorable approach to managing IT projects (Van Casteren, 2017). The empowerment of smaller project teams to deliver incremental product delivery that can withstand customer changes drove the necessity to create newer hybrid approaches to project management (Almeida & Simões, 2019). This change in project methods meant a 25% increase in stakeholder communication, flexible and faster product development, and improved requirement tracking over previous SDLC-driven waterfall models (Almeida & Simões, 2019). The newer design focused more on project improvement in design, scope, and structure to enable higher success.

Project design failures drove optimization of earlier frameworks to create newer, project-oriented methods to increase schedule delivery through smaller incremental sprints (Conforto & Amaral, 2010). The goal is to adopt methods or frameworks that

provide PMs the flexibility to tailor project designs to match organizational cultures or project requirements (Del Giacco et al., 2019). The historical study of project management methods by Cakmakci et al. (2019) outlines critical supply chain requirements to validate just-in-time resources required for production. The study explored data attributes of resource requirements at each stage of production to ensure PMs were managing resource tasks effectively in a Kanban project management approach. The assembly line production process applies to other project management theories by outlining critical production steps and balancing of resources to reach project success.

The project scope phase is an initial building block of project management design by capturing project requirements and setting customer expectations (Khoza & Marnewick, 2020). The alignment of scope and set customer expectations help to create a stake in delivering a final product within scope (Mauludin et al., 2020). Research attributes low success rates (10%) to waterfall challenges of being inflexible to changing customer requirements, coordination issues between distributed teams, and adaptability to organizational cultures and processes (Khoza & Marnewick, 2020). The use of visualization tools, like Gantt charts, enables PMs to chart process flows that set clear expectations for customers and employees.

Project structure adapts SDLC sequential tasks to structurally monitor, track, and assign tasks to meet a final product delivery (Van Casteren, 2017). Each phase of the waterfall sequential order is reviewed and approved before moving to the next phase of development (Sudrajat et al., 2019). The plan-driven waterfall cycle relies on project

evolution of pre-determined tasks and any deviations result in the recycling of tasks to the beginning phase (Andrei et al., 2019). This stringent cycle, without any allowance for uncertainty, made waterfall a disadvantage to use within IT projects with multiple changes during SDLC. Test & evaluation, which was done later in SDLC stages, created disadvantages for products that did not meet customer expectations at each stage of delivery.

The prevailing failing waterfall methods created a business need to design newer methods that allowed PMs to explore new tactics. The success rates of over 8,380 projects to theorize the resounding themes causing the failures (The Standish Group, 2021). The survey of 365 respondents shows only a small number of projects completed on time (16.2%), 52.7% completed but were over-budget, and/or did not meet requirements, and 31.1% failed before completion (Bezdrob et al., 2020). The research shows trends for extended research to focus on the transition from waterfall to other methodology frameworks.

To help manufacturing business owners visualize processes and milestones, Kanban creates a Just-in-Time (JIT) modeling view to show time-based supply chain milestones to deliver products to the customer (Cakmakci et al., 2019). Born out of inefficiencies and production line failures within Toyota assembly plants in the 1940s, The Kanban methodology approach decomposed value stream processes to improve production controls (Seltz & Heckman, 2020). Kanban is like agile methods used in IT projects by visually depicting small production lines to improve team performances.

The model visualizes workflow gate processing times and analyzes opportunities to reduce waste and increase deliverables or task completion times (Saltz & Heckman, 2020). The comparison between project methods across various domains is optimization and synchronization between different assigned teams working on independent studies (Smith, 2019). The realized service is a task assignment or optimizing the speed of delivery. These benefits transpose in a similar agile methodology that focuses on finding efficiencies in task management. Kanban value stream aims at creating a product with the shortest lead-time, at the highest quality, and the lowest cost possible, to deliver the highest level of customer satisfaction (Cakmakci et al., 2019).

Extending beyond Kanban's theory on time-based approaches, agile subset methodology, called SCRUM, focuses on 19 processes divided among five structured phases; (a) Initiate, (b) Plan and Estimate, (c) implement, (d) review and (e) retrospect release phases (Dixit & Bhushan, 2019). The division of tasks enables an iterative and progressive process that structures in smaller structured formats, called sprints, two to four-week-long deliverable packages (Gandomani et al., 2019). The sprint owner manages overall task progress for the team members and reports back to the product owner (Firdaus et al., 2019). The sprint owner can then manage the project through higher-level categories of roles, artifacts, and time boxes to assign and track assigned team members (Fowler, 2019). The product review and formal acceptance mark the end of the sprint cycle to signify partial or full product delivery has occurred. SCRUM framework and agile methodologies continue to evolve because business needs require

PMs to tackle complex software (add-in IT) projects and realize the benefits of creating process baselines into short, time-based delivery schedules (Stormi et al., 2019).

Summary

In section 1, I provided an overview of the business phenomenon and the impact of not applying the right project design has on IT project success rates. The supporting subsections of the business problem, purpose statement, nature of the study, research questions, conceptual framework, and a literature review, help develop a framework for project design, scope, and efforts required to succeed with a valid study. The definition of the general business problem in section one helped to identify the research pool of those PMs who failed to leverage a successful program management design, to highlight the continued research on profitable PM strategies. In the supported literature review, I examined strategies leaders impose on project requirements while increasing profitability. The primary review sections were the conceptual framework, research design, and approach. In section 2, I will discuss the methodology and details of the proposed study. Section 3 will provide a comprehensive analysis of processes involved in concluding the study and will include an explanation of data collection and analysis techniques.

Section 2: The Project

In Section 1, I presented an overview of the methodology and described the processes involved in conducting the study. In Section 2, I will describe the research design into how participants were selected using ethical research, data techniques, and how the research was grounded to gain reliability and validity. The research design includes the researcher's role to explore the experiences of respondents within the specified target market.

Purpose Statement

The purpose of this qualitative multiple case study research was to explore project management methods that PMs are using to reduce project failures. The target population included nine Northeastern regional PMs and 20 survey respondents across three to five IT companies that have successfully implemented agile methods to reduce project failure rates. The population pool is large enough to increase research validity and included IT PMs who are applying agile project methods to influence project success. The findings of this study could contribute to positive social changes through the adaption of successful agile methods into training, leader behaviors, and individual growth. The promotion of employee's professional and personnel prosperity can extend concomitant benefit into the local community economies through increased tax revenues.

Role of the Researcher

The researcher's purpose is to explore available data to hypothesize alternative strategies to solve business phenomena (Kim et al., 2017). A researcher has the responsibility to remove personal bias and keep an uninhibited approach to understanding

the topic (Yin, 2018). The collection of data through surveys and direct source contacts enables the researcher to become the research design's data instrument (Cypress, 2018). I used an interview protocol (see Appendix), which is a guide that provides a list of open-ended interview questions. The interview protocol ensured that I maintained the same specific lines of inquiry with each participant interviewed. Additionally, the interview protocol outlined the specific topics and subject areas, which the researcher was free to explore, probe, and ask questions to clarify that topic of the study (Van de Wiel, 2017). The interview protocol acted as a checklist during the interview process to cover all relevant topics during the session.

My past professional experience enlightened me on the topic of IT project management using project management initiatives. However, I did not have previous experience with research in this area or the participants and desired to learn more about how agile methods could be effectively applied in IT project management. For the past 20 years, I have worked as a PM for the U.S. Air Force. Through this experience, I became familiar with the execution of complex IT projects and gained a deep appreciation for the challenges PMO IT project leaders face when managing complex efforts. Because of this experience, it was important for me to conduct data collection and analysis without preconceptions as to what I found. By bracketing my perspectives, I was able to acknowledge the IT project management strategies conveyed through raw data rather than viewing these data as framed by my professional experiences.

The interviews were recorded to remove bias and closed-ended questions during the meeting to help reduce non-leading questions during the conversation and remove any

preconceived notions of attributed causes of IT project failures. Another aspect of the researcher pertained to ethical considerations as outlined in *The Belmont Report*. Respect for persons refers to honoring participants' autonomy and avoiding deception (Adashi et al., 2018). I adhered to *The Belmont Report* requirement by explaining the study clearly and assuring participants that participation was voluntary during the informed consent process. The power imbalance between participants and the researcher might also cause harms that violate the beneficence dimension of *The Belmont Report* (Adashi et al., 2018). But I did not have a previous relationship with participants that might create a power differential.

Participants

Purposive or convenience sampling enables generalization of the population to increase time and access to the desired workforce (Etikan et al., 2016). The number and pre-selection of participants are recommended to allow for access and choosing of respondents who are most knowledgeable or experienced with agile practices (Cassell et al., 2018). The use of a pre-screening survey steered candidate selection toward mid-senior level PMs from the northeastern United States who have had positive and negative experiences using agile methodologies for project success. The sampling of experienced agile PMs with more than 4 years of experience aided in extracting methodology practices that were successful and could translate into practices that emulate for future projects (see Natow, 2020). The unique data focus influences the data collection methods to focus on only those candidates that might have direct experience in managing projects that achieved success.

Because of the restricted access to direct contact of employees, data collection wias done virtually through a survey and questionnaire. Online forums are a viable, online option that provides quick access to participants (Carter-Harris, 2016). My research design included data collections through structured virtual Zoom interviews and online web surveys. Recruitment began by emailing a welcome letter and establishing a rapport and communication channel with the respondents (see Cheng et al., 2017).

Research output varies based on respondents' experiences and trust within the study (B. Smith & McGannon, 2018). The selection of using a multiple case study approach assumes respondents do not have pre-conceived assumptions on how similar organizations leverage agile to garner project development success. The open-ended interview questions allow candidates the flexibility in providing unconstrained feedback in extending agile research (Gaya & Smith, 2016). This design approach is an assumed necessary means to not only provide context but also to focus research questions tailored to both PM knowledge and insights into successful project agile methods.

Research Introduction

The research goal was to explore participants' experiences operating in non-software agile project management workplaces to explore successful approaches to managing IT projects. The research design for this study was grounded using qualitative methods to compare existing agile methods and those being used within multiple companies. The intended data collection tool was a survey poll toward a small number of employees to craft a larger demographic based on survey results (see Creswell & Creswell, 2017).

I emulated previous survey approaches by using an online survey to solicit employee participation and provide the intent of the research (see Howlett et al., 2018). The online survey approach aligned with existing organizational virtual practices to provide quicker, easier access to employees from remote locations. The survey captures the descriptive respondent information to highlight employee demographics and experiences using project management practices. The baseline questions correlated to agile processes and draw respondents' experiences in what is working and what is not in managing projects. The survey data points focus on PM experiences in both failed and successful projects that operate in non-software industries.

Research Method

The qualitative research method was selected for this study to explore project process steps and compare them with PM experiences that results in project failures. The qualitative study aided in exploring the business phenomenon and categorize the *why*, *what*, and *how* of both business processes but also PM methods (Gaya & Smith, 2016). The research focus goes beyond exploring PMs' lack of agile skills but also how they are applied toward improving IT projects. The review of company policies outlined organizational limits while exploring PM experiences can help researchers explore project triggers along critical paths to determine roadblocks to project success and PM knowledge levels.

Researchers use a quantitative research design when data results are intented to be measured and quantified. Quantitve studies focus on numerical data to examine theories based on scientific methods (Creswell & Creswell, 2017). I did not select quantitative

research because I wanted to capture PM experiences and explore project management approaches to project successes. The absence of analytic processes drove qualitative data triangulation based on user experiences rather than measurement of numeric indicators (Mihas, 2019). The nature of this study focused on process exploration instead of rationalizing data points for analysis.

The mixed-method approach was also not appropriate for this research. Mixed-method designs combine both quantitative and qualitative designs to capture respondent experiences but also uses numerical statistical data points to enumerate data themes (Braun & Clarke, 2021). Statistical data though data triangulation can be difficult to theme into qualitative results (Lucero et al., 2018). This method was not appropriate for capturing user experiences.

Research Design

The research design was a multiple case study to collect needed data and use the project management theory for analysis. The design focused on three phases: explore the business phenomenon, challenge the employees to pinpoint root causes, and then extend agile research to improve PM knowledge and the use of agile methods. The design approach embeds survey input from industry experts (web) to the direct interviews of company PMs that need help in managing projects. The choice to explore internal and external viewpoints allowed for enrichment of the study by broadening the understanding of agile methods used within the small company setting to industry practices (Mihas, 2019). The organizational setting was critical to collecting the raw, unfiltered data directly from employees.

The research to explore project managers experiences using agile methods for project success was designed as a multiple case study for two reasons. As Langa and Govender (2019) found in a similar study using the banking industry, research needs real-world business phenomena to explore multiple data points collected by diverse population groups. Second, the case study design targets collecting data from field experts and developing theories from it (Yin, 2018). By design, the research has validity and reliability because exhaustive data collection is being collected directly from the sources that have direct knowledge into project challenges using various PM design methods.

Research designs can also be phenomenological, ethnographic, and narrative when conducting a qualitative study (Cypress, 2018). A phenomenological study focuses on a single event to explore the dynamics of the specified phenomenon (Gaya & Smith, 2016). This approach was not appropriate for this study since research encompasses multiple events across multiple organizations. Ethnography is a study design approach that studies behavioral trends over a long period of time (Smith et al., 2021). Ethnography was not appropriate for this study of various project management methods over independent situations.

Population and Sampling

This qualitative multiple case study incorporated purposeful sampling methods to recruit 15 Northeast PMs online participants who have 10 or more years of successful experience in using project management methods to ensure project success. Annosi et al. (2020) described purposeful sampling as targeting experts with agile methodology

experiences managing IT projects. This design approach using expereine PMs, reduces data sources that may not have the knowledge, experience, or skills and would otherwise detract from data integrity. Using purposeful sampling also gave me insight into how agile is being used at multiple organizations outside the focus of research. The study's design solicited mid-level and senior experienced agile professionals through social media and interviewed them by using semi structured virtual interviews. The purposeful sampling aids in reducing erroneous input from PMs who do not have the experience to manage IT projects and increases the validity of the research (Lemboye, 2019). The research design goal was to reach data saturation when all data begins to show a similar theme and no new information highlights any data points outside the norm.

The respondent pool reflected design objectives of capturing positive-results practices of what is working and what is not, with stakeholders reducing time, scope, and cost overruns of IT projects (Howlett et al., 2018). Yin (2018) supports keeping candidate pools low to help increase exploration of data points and focus on design objectives and not get derailed by *extra* data points or triggers. To help focus research survey objectives, I reviewed possible project delays that led to agile sprint failures at all phases of project maturation and designed scaling questions to capture various approaches of both successful and unsuccessful strategies. Since COVID-19 restrictions limit face-to-face interviews, both online surveys and interviews over Zoom to capture the intent of respondent responses.

Ethical Research

The prerequisite for conducting research, whether it be for interviews or surveys, is to gain pre-approval from the Institutional Review Board (IRB) at Walden University. Before submission, the researcher must learn a basic, ethical understanding of how to maintain ethical standards in academic human research by completing seven courses through the Collaborative Institutional Training Initiative (CITI certificate #9158342). The modules focus on gaining research consent and protecting the privacy and confidentiality of the respondents.

The research design included a virtual consent form prior to candidate interviews to protect both academic integrity and the participants' interests and privacy (Pietilä et al., 2019). These ethical pillars highlight special consideration of potential risks: researcher role, the way the research is conducted, and the respondents' protection. The Walden institutional review board (IRB) will review this study for adherence to ethical standards (IRB Approval Number 03-09-22-0975409).

Ethical conduct of research involves the provision of informed consent to participants and assurances that participation is voluntary (Iphofen & Tolich, 2018). In my first contact with each IT project manager who chooses to participate, I provided the informed consent form that explains the potential risks and benefits of participating in this study (Merriam, 2009). I also provided a verbal explanation of this information to ensure that participants understood the purpose and procedures of the study and that there was no incentive for participation (Hair et al., 2015). In this informed consent process, I explained to participants that they have the option to withdraw from the study at any time

before, during, or after data collection without penalties (Hair et al., 2015). Participants were able to communicate verbally and/or through email if they choose to withdraw participation (Hair et al., 2015).

There are no incentives to the participants for participating in the current study (Engward & Davis, 2015). The informed consent process included an explanation of procedures to protect the confidentiality for participants (Iphofen & Tolich, 2018). I kept all participant data confidential by coding each participant with a pseudonym (such as P1, P2, P3, P4, and P5) in place of actual names (Doody & Noonan, 2013). Any information that participants share that might be identifiable (including coworkers' names, company names) in the final findings were altered to preserve confidentiality or omitted if this was not possible (Doody & Noonan, 2013).

For example, if participants during the study refer to coworkers by name, or refer to their organizations by name, the information will be either omitted from or presented using pseudonyms in the final findings report. I will omit any potentially identifiable work-related information that participants could share in regards, to their specific positions from the findings of this study, or I will use pseudonyms in the findings report to maintain confidentiality. Descriptive information regarding participants will be kept confidential by using pseudonyms in the findings report. In cases where I am uncertain, I will request the participant's perspectives on where the questionable information would indeed be identifiable by others. Data storage practices will also ensure confidentiality and electronic files will be password protected. Hard copies of data or materials will be kept in a locked file cabinet. I will store data according to these security standards for

five years at my home. I will then destroy all hard copy data by shredding to ensure the participants' confidentiality. Additionally, I will permanently delete all electronic copies of the data.

Conflict of Interest

Collaborative Institutional Training Initiative (CITI) training outlines conflict of interest as to someone who has a positional power to influence respondent behavior and compromise research results. CITI notes it as "paycheck vulnerability" because questions might allude to workplace issues that leadership does not want to make widely known outside their company walls. Two items that stood out were: informed consent and assessing the risk. The disclosure of data points through employees supporting the research, might not help understand the ramifications of what information they are sharing and to what extent. IRB recommends due care by interviewers to inform all parties of the research's extent and how the results will be used during and after research. Based on the research design using anonymous virtual surveys and interviews, there are no conflicts of interest.

Data Collection Instruments

The COVID-19 pandemic necessitated changes in research from in-person collection to semi structured virtual interviews and web surveys. By design, the virtual construct aids research validity by reducing researcher bias and environment variables by focusing on respondent responses and research questions to build a foundational theory based on experiences (Howlett et al., 2018). The multiple case study approach used a Delphi collection and online survey instrument for data collection. The approach to align

interview question focus to data collection methods, increased the stability of collection results across the multiple focus groups (Swart et al., 2019). The virtual interviews over Zoom capability allowed for open-ended interview questions to explore respondent experiences of agile, environment, and people triggers (Howlett et al., 2018). The versatility of semi structured interview questions allowed the interviewer to provide question context if needed, to help collect agile experiences in project success and failures. The purpose of using open-ended exploration approach was to help clarify and explore responses to seek a better understanding of the culture and approach PMs were using in project designs.

The collection of multiple data sources enhances research reliability and the quality of the research design (Linneberg & Korsgaard, 2019). During the interview process, the goal was to leverage open-ended questions and dialogue to increase the basic understanding of how and what project-level agile methodologies were being used within each organization. The organizational governance or documentation expanded the researcher's knowledge of the subject and helps narrow the research focus for both respondent and interviewer (Yin, 2018). As a secondary benefit, multiple sources increase research validity by reaching data saturation into consistent themes. Yin (2018) also noted that method triangulation increases reliability and validity through the convergence of multiple data points. In the first round of questioning, I used web surveys to reduce the candidate pool down to nine PMs who have agile experience in project success. Once the candidate base is established, I used semi structured, Zoom interviews to create a multi-source data set that is then coded and binned into themes. Once binned,

the best practice is to use member checking to validate collected data points with peer reviews (Busetto et al., 2020). The validation and interpretation of data points increase the study's validity.

Data Collection Technique

Because of COVID-19 restrictive access to in-person contact of employees, I opted to use a virtual study design approach, similar to Veugelers et al. 's (2020) research design towards data collection. His team used sampling data collection techniques to reach a richer data triangulation using semi structured interviews through video teleconferencing (Zoom), and open-ended survey questions with research participants. Audio recording is a data collection technique that was used to transcribe the audio recordings from the participants (Creswell & Creswell, 2017) Permission to audio-record interviews was included as part of the informed consent form and I noted the recording process during each interview (Creswell & Creswell, 2017).

Yin (2018) described three main characteristics of a qualitative research interview, which are to ensure the collection of rich and detailed information via personal experiences, the interviewer avoiding providing specific answer categories and encourages open-ended discussions, and the interviewer may deviate from scripted questions to ensure flexibility in the discussion with each participant.

Following the informed consent process, I obtained each participant's acknowledgement on the informed consent forms. Once signed, I scheduled one-on-one virtual session with each participant at a time and date of their choosing (Merriam, 2009). Permission to audio-record interviews and retain them for a minimum of 5 years, was

included as part of the informed consent form (Creswell & Creswell, 2017). Upon receiving IRB approval from Walden University to make initial contact with each potential research study participant, I used social media websites to identify potential participants. I contacted them by emailing an invitation to each participant and providing the informed consent form (see Appendix E). I also followed the semi structured interview protocol listed within Appendix D. The researcher may remain flexible to choose alternating questions if the researcher finds a more appropriate interview flow with each participant. To obtain documents for review, I asked the participants' approval to provide company documents they had the authority to share. I followed the interview protocol (Appendix D) to ensure consistent data extraction from these documents. It is the responsibility of the researcher to maintain adherence to the study protocol (Thomas, 2017).

Structured online data collection techniques, such as Braun and Clarke's (2021) successful data methods aides in establishing baselines for survey time and scaling to improve research validity and research objectives. The design's validity aligned design to data objectives in exploring agile phenomenon's in IT projects by focusing on project changes (Simonofski et al., 2019). The use of a pilot group helped clarify ambiguous questions and aid in the functionality of the online survey source.

To reach the objective of purposeful sampling, I interviewed nine Northeastern regional PMs across three to five IT companies who had applied successful strategies for IT project management. This respondent pool approach ensured a random, representative sampling for data collection (Howlett et al., 2018). Solicitation emails are helpful to

narrow knowledgeable PM participants who have leadership buy-in and in improving APM business processes. To gain community concurrence of research, I offered to share survey results and support further research into agile processes to improve future operations. My committee approved my intended interview questions (see Appendix D), I surveyed the project management community in two approaches.

Data Analysis

The qualitative data collection methods build reliable and valid research data pools using multiple data sources (Mihas, 2019). The triangulation of numerous data points enhances the study's richness in exploring the multiple angles and perceptions of why agile is working or not working with the PM environment. The extra data points of capturing behavioral responses help build awareness of how employees react and feel to given situations. Natow (2020) demonstrated constructive data triangulation approaches for both primary and secondary data points to illustrate the vigor and richness. Wardani and Kusuma (2020) extend similar studies using inductive and deductive data analysis to capture field experiences that culminate in a beneficial field recommendation. The prevailing theme is to create data schemas to help understand the underlying data elements.

Linneberg and Korsgaard (2019) demonstrate interactive novice coding to support a hierarchical leveling from top-level grouping down to specific elements to link triggers with recommendations. The research design aligns with Yin’s (2018) data analysis process by compiling data into groups, disassembling it into a meaningful coding structure, and reassembling it into emerging patterns that start to interpret data into

attributable themes. The concluding step allows the researcher to mold the data analysis process to extract additional theories and themes (Linneberg & Korsgaard, 2019). The research design will use one individual researcher to collect and theorize data points using NVivo to assist in the analytical coding process. The software helped create mind-mapping data collected and triangulate prevailing themes. Once binned, I will summarize the data interpretation with IT field subject matter experts as part of the member checking process.

Abanda and Musa (2020) modeled qualitative data points in NVivo to validate the researcher's analysis in generating relationships between interview question data points and the business phenomenon. This use of software-driven coding aided in reducing researcher impartiality in building the coded themes and relationships. Yin (2018) supports the use of themes to triangulate multiple data sources. The design resonates with PMs and SMEs on improving agile processes through study findings. During 2018-2020, I set up Google alerts to notify me of any scholarly research that pertained to agile, PM strategies, project failures, etc., to become familiar with business challenges. Yin (2018) recommended that researchers be immersed in their field of study and focus on research that can improve the larger audience and not just a singular incident.

Reliability and Validity

In a qualitative study, the researcher will achieve reliability and validity by using both member checking and triangulation to increase the quality of the research (Hayashi et al., 2019). Reliable research means the study can be duplicated with similar attributes and the outcome remains the same (Rose & Johnson, 2020). Validity is achieved by using

the right mechanisms to accurately apply the data to the business challenge (Eaton & Ohan, 2019). The quality of the research and the garnering respect by scholars is orchestrated by including dependability, creditability, transformability, and conformability to ensure both accurate results, and research accuracy through data design methods.

Dependability

Dependability is achieved when research contains the consistency and reliability of documented findings that can be critiqued or repeated during revalidation (Castillo-Montoya, 2016). I used data coding applications, interview protocols, and member checking to ensure consistency, reliability, and dependability of the research. According to Linneberg and Korsgaard (2019), dependability aims at ensuring the study's findings are consistent with the data collected and can be emulated by other researchers during their study or an external audit. The data coding process brings rigor to data interpretations by reducing errors made by researchers or by interviewers (Regeru et al., 2020). I will apply semi structured interview protocol (Appendix A), document review protocol, and member checking processes to validate the dependability of the findings and to ensure research creditability.

Credibility

Credibility forms when research findings point to similar assertions or propositions by other researcher studies (Howlett et al., 2018). Creditability is an important aspect of achieving trustworthiness and establishing a validated, truthful research finding (Yin, 2018). Through triangulation and member checking process, data

is scrutinized to achieve a consistency of findings (Regeru et al., 2020). I did not have any prior insight into interview participants. After data theming, I used a member checking process with interview participants to validate results and validate research data themes to increase overall research creditability.

Transferability

Transferability occurs when research contexts or settings can be applied to other studies using different candidates being interviewed (Cope, 2014). By describing the study's contexts and assumptions within the research design, enables the transferability to additional research (Munthe-Kaas et al., 2020). An established process of documenting the assumptions, candidate population, and study boundaries allows for the transference of study knowledge to other settings (Tracy & Hinrichs, 2017). The data analysis design outlined those steps taken to document the planning and analysis of associated research. Lemon and Hayes (2020) noted that it is the researcher's task to document the approach, findings, and conclusions to ensure the transference to further research and to build the trustworthiness of the findings.

Confirmability

Confirmability is the degree to which the research study can be confirmed by another research (Johnson et al., 2020). Cope (2014) describes confirmability as data and its findings can be substantiated by other researchers. I avoided research bias by using an external vendor to capture and document interviewee responses within a formal, written response log. Confirmability provides the validity of the finding by removing bias and strengthening research results for other researchers to leverage for continuing studies

(Hariri et al., 2020). The inclusion of documented processes and member checking verifying collected data strengthens research confirmability for further studies.

Data Saturation

At the point when additional data collected does not change research findings or transference of the study for other studies, data saturation is achieved (Aguboshim, 2020). Research design was tailored to not put boundaries on data collection possibilities but used data theming to ensure collected data accurately represents the study's findings on reducing project failures. I encouraged candidates to expand on interview questions to gain a wider breadth of knowledge of the topic. Braun and Clarke (2021) recommended continuing data collection until there are no additional data themes. I will reach data saturation by collecting experiences from both the 15-candidate sample size and through the web survey collection method. To protect participants' confidentiality, I avoided disclosure of identifiable information by using code names and pseudonyms for each participant throughout the study.

Summary

In section two, I outlined a detailed multiple case design approach, which aimed at identifying successful agile methods used by 15 PMs to reduce project failures in three to five IT companies located in Northeastern companies. Data collection consisted of semi structured interviews from each of the fifteen PMs and data collected from twenty survey respondents that have associated experience. As appropriate for a qualitative multiple case study, I conducted a thematic analysis with triangulation across all data sources. In Section 3, I will present the outcomes of this analysis, discuss the implications

for professional practice and positive social change, and provide recommendations for future research and action as these emerge from my analysis.

Section 3: Application to Professional Practice and Implications for Change

The purpose of this qualitative multiple case study was to explore project management methods that PMs are using to reduce project failures. The study criteria focused on selecting PMs with experience in using agile methodologies in managing IT projects. I collected participant responses from semi structured interview questions. The study design focused on Yin's (2018) five-step process and the use of NVivo 1.6. 1 qualitative software, resulted in three themes: (a) communications, (b) cultural dependencies, and (c) effective planning. Based on research findings, I present the major themes, also including each theme's supporting contributors to project failures. I also recommend follow-up research areas to apply agile methodologies in multiple industries. In conclusion, I reflect on my doctoral journey and provide lessons learned to aide other researchers in studying agile in IT projects.

Presentation of the Findings

The purpose of this qualitative multiple case study was to explore the research question "What agile project management methods are project managers using to reduce project failures?" The semi structured interviews focused on 10 primary research questions with several exploratory, follow-up questions to clarify and gain experiences into PM methods in managing challenging IT projects in the northeastern United States. Because of COVID-19 restrictions, the study was conducted over Zoom. After the interviews were conducted and digitally recorded, I transcribed the audio recordings using Trint on-line software and exported the text file for each interview. I also kept a Microsoft Word journal to annotate key phrases or emphasized challenges each PM

encountered. The data captured under each participant label identified common themes among interviews.

The initial research design targeted 15 participants. Data saturation was quickly reached by using nine, senior PM interview participants who had similar experiences in project failures. I conducted data analysis using NVivo qualitative software to identify codes, and grouped the higher percentage of codes into three major themes. Figure 1 highlights the common word matches across all nine participants.

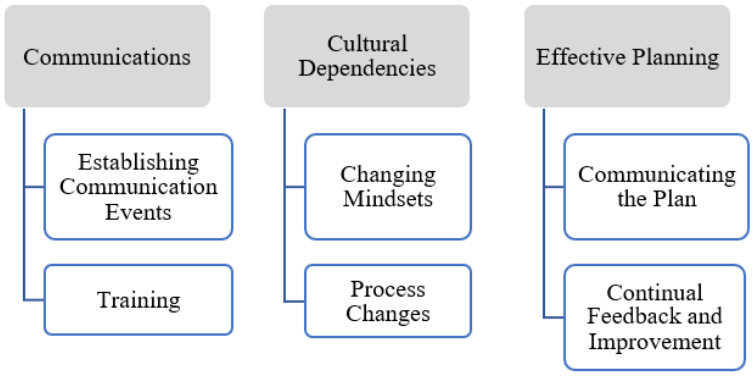
Figure 1

Word Frequency Pattern

The major themes of (a) communications, (b) cultural dependencies, and (c) effective planning were based on the high-level frequency matches within the interview responses (see Figure 2). I leveraged post-interview member checking sessions to validate the transcription process and theme analysis with each candidate.

Figure 2

Data Themes



Theme 1: Communications

According to all PM interviewees, everyone experienced a multitude of hindering factors effecting communications issues within team members, product owners, and sponsors. Over 85% of interviewees noted not only the lack of communication at the beginning of requirements gathering but also during product backlog creation, sprint planning, task execution, testing, and next sprint planning. Communication is the cornerstone for the beginning, middle, and end of any agile production (Wiencierz & Röttger, 2021). Thirty percent of projects fail because projects lack the right communication touchpoints with stakeholders (Habbi & Kermanshachi, 2018). Respondents R3-R8 experiences supported this claim and noted communication issues with role responsibility, expectation management, and progress checks were to blame. R3 and R8 identified fault back to lack of agile training and awareness by all stakeholders were causing the communication issues. R3 said, “if you don’t know the process, how are you supposed to enforce or facilitate the process?”R8 noted that, “Traditional PM

processes see change in requirements as almost failures, whereas agile sees it as an opportunity to get it right the next time." Underlying issues of education, awareness, and culture are contributing factors to organizational communication issues (Anthony et al., 2018).

All nine interviewees noted an initial hesitation by leadership and customers to support the agile methodology. The newness of not knowing the processes flow and how agile works led to many breakdowns in communication during initial requirements gathering or when challenges arose during production. Five candidates (R2, R5, R6, R8, and R9), felt employees who put *agile experienced* on their resume really did not have working knowledge skills to be applied on the job. Many employees still have a waterfall mindset in focusing on a serial, incremental process to complete tasks rather than looking at all available resources to complete a grouping of tasks (Kostalova et al., 2018). R1 noted that managers would micromanage workloads and over task individual works because of their high work ethic; his tasks were failing because the employee was overloaded and could not complete the tasks on-time. The lack of communication and role assignments between project managers and managers were not clearly articulated or known before project kick-off.

R2 and R9 recommended establishing a project implementation plan that outlines not only the schedule but also the communication between all contributors. R5 said, "Accountability was a factor because individuals were not communicating development challenges that effected scheduling." R7 provided a use-case scenario where the customer was speaking directly with individual developers and not all team members were aware

of the changes that effected the scope of the project. Most respondents recognized the implementation of frequent performance reviews was critical to improving communications by all stakeholders, including the customer.

Within Theme 1 of communication, the prevailing consistently of dialogue with interviewees, focused on two strategies to improve communication: establishing communication events and training. All nine participants highlighted that establishing communication events was vital to success. Out of the nine surveyed, six candidates mentioned that training was required to prepare stakeholders on how to conduct such training events.

Establishing Communication Events

Communication plans are established with project charters. R1 and R9 both referred to project charters for identifying performance reviews with stakeholders. PMBOK's initial project design begins with the planning phase that outlines the communications plan (Verzuh, 2021). According to PMBOK, managing communications can be the difference between unsuccessful and successful project execution. R5 noted that without a communication plan, PMs leveraged successful Sprint planning to identify touchpoints with stakeholders. Over 75% of interviewees mentioned that setting clear communication expectations during requirement validation for tasks that were grouped into epics, deconstructed into stories, and then feed into an incremental workload called sprints. The common examples interviewees shared on task priority scoring were those that were between the PM and product sponsor:

- Which initiatives take priority over others and any change in deliverable dates?
- Any additional resources (funding or people) to meet added tasks?
- What is the completion goal of the backlog tasks? (i.e., 10/20)

Communication between PMs and sponsors increases project success at an exponential rate (Anantatmula & Rad, 2018). R9 noted that during initial kick-off planning, tasks are identified early on and divided in the current sprint versus to be worked in the backlog. Each new task added influence current and backlog of task priorities based on available resources. R2 noted that many times, PMs would have to "crash" available resources to add more people to individual tasks to complete them quicker. These added resources are communicated to stakeholders to highlight changes in funding (burn rates) or scheduling. When communicating changes, clear expectations are vital to project success in what the customer will accept or risk without (Kane et al., 2019). R4, R6, and R9 all noted that having a documented Kanban Board will help visualize and communicate what tasks have been accepted and added into the workflows.

The scoping of tasks using PMBOK's conceptual framework ensures all tasks are specific, measurable, achievable, relevant, and time-bound (SMART), which helps to baseline to document expectations. R1 noted that having SMART objectives aides in velocity scoring to assign urgency, risk, and resources variables to each task. The challenge, noted by R7, was that not all agile PMs know how to add and score tasks to be successful. The validation of employee skills was recognized by R2, R5, and R6 as vital to ensure team members have the abilities, they say they have, to fulfill role assignments.

Training

Sixty-six percent of the participants noted that knowing agile processes were not widely known by PMs or customers. Literature supports that most PMs who are stuck in a waterfall mentality are challenged to think outside of serial processing of tasks (Dunne, 2018). The backwards planning of product deliverables requires PMs to have frequent communication with stakeholders. If PMs lack agile training, they may be inclined to execute a waterfall methodology and set requirements at the initial planning phase and not check back in until project end resulting in misinterpreted requirements or non-acceptance of the product (Thesing et al., 2021). Projects in the IT industry are specialized and leave little room for variance (Given & Wilson, 2018). If IT projects are expected to change rapidly, then PM and customer agile training is essential to successfully manage change.

R1, R3, and R8 all noted that training would create a better communication structure and improve organizational culture. R1 noted that management expected PMs to manage challenges internally and do not seek help from outside the team. R3 noted the opposite saying management was micromanaging the project and not allowing PMs to manage resources or task prioritization based on team skillsets and availability. R6 provided a historical example where management reprioritized tasks without PM awareness and caused a 6-week schedule delay and overrun of funding. Education would have created an organization structure where PMs management day-to-day activities and implemented performance reviews for management to voice concerns or changes.

Connecting Theme 1 to the Literature

All participants stated that communication was a challenge to reaching project goals. The customer awareness of project progress contributes to increases project acceptance and reliability of delivering a product that meet customer's expectations (Varajão et al., 2018). Participants noted difficulties in sharing project challenges with customers. Having a structured, open communication schedule enables trust and forces partnership between PMs, leadership, and the customers (Newman & Ford, 2021). Several interviewees stated that having customers attend sprint updates throughout project lifecycle, allows for constructive feedback and awareness of cost, schedule, and performance statuses. Literature in waterfall and agile methods shows trends in communication challenges that effected project delivery.

All participants noted organization culture challenges of manager not adapting to agile methods or processes. The literature has noted that some project failures are attributed to leadership not adopting or applying good management soft skills to the right environment (Magano et al., 2020). In fact, R1, R4, and R7 mentioned that over one half of project failures were the fault of management falling back into their old habits or routines and not adjusting to agile practices. According to PMBOK framework, understanding and promoting good communication throughout each development stage is vital to project success (Baker, 2020). Understanding the PMBOK and agile processes could improve both communication and organizational culture (Rosenberger & Tick, 2018). IT project teams improve communication by establishing reoccurring metric reviews and establishing, agreed upon success milestones with stakeholders (Anjani et

al., 2021). By outlining goals and acceptance thresholds, project teams are empowered to stay productive and stay on-track unless those thresholds are not met (Khanagha et al., 2021). A successful project design is supported by literature as having an established framework upfront and periodic reviews to ensure the project team, sponsor, and management are continually aware of project status.

Connecting Theme 1 to the Conceptual Framework

Every organization faces constraints that hinders project success. All nine participants noted communication issues during some or all their experiences with managing projects. Communication issues are the direct reasoning for poor project success and decreases a cohesive organization culture (Antony et al., 2019). According to the PMBOK framework, understanding when and where communication touch points should be within PMBOK phases could result in improved cohesion among team members, improved relations with stakeholders, and leading to an accepted deliverable (Lauren & Schreiber, 2018).

Familiarity with the PMBOK could identify project design processes that could mitigate some of the communication challenges that hinder project success (Zaheri et al., 2022). IT has improved communication by adopting processes that PMBOK recommends at each of its 10 system development phases (Zaheri et al., 2022). From a project design approach, PMBOK creates communication challenges and sets periodic reviews for the project team to work with the customer. PMBOK outlines standard communication requirements like frequent status reviews, metric reports, and reporting processes at both

project kick-off and throughout the project lifecycle. These standards help create a project communication plan that can be agree upon and followed by all stakeholders.

Theme 2: Cultural Dependencies

The acceptance of agile methodology has a direct correlation of how organizational culture is applied to IT project designs (Rebentisch et al., 2018). According to R6, “seasoned leadership is reluctant to change from antiquated processes to new agile methods. Russo (2021) hypothesized that lack of organizational acceptance is a large factor affecting agile project success. All nine respondents’ experiences have highlighted challenges from all levels to include worker, manager, and customer. R5 and R9 noted that when customers and managers are unaware of what their responsibilities are and not engaged in project design or requirements building. R5 provided the scenario of, “initial customer requirements requested a blue car; in the end, he was expecting a blue car but with 4 doors and a sunroof”. If stakeholders were educated of their agile responsibilities, they could have known to be part of the planning and communication process.

The acceptance of agile methods is not an easy change. Organizational culture changes people’s values and attitude towards newer ways to approach project designs (Liao & Ai Lin Teo, 2018). Previous waterfall methods, as noted by R3, were rigid and less flexible to changing requirements. agile allows organizations to balance resources based on each 2–6-week sprint delivery cycle (Dingsøyr et al., 2018). R2 approaches the sprint delivery to build boundaries around what it took to accomplish the small chunk of tasks rather than looking at the entire project at once. agile allows for the organization to

shift, speed up or slow down, based on task complexity, cost, schedule constraints, and performance of the task efforts (Hamad & Al Fayoumi, 2018). All participants noted that knowing what to do, when to do it, and to get leadership buy-in, was a challenge they encountered all too often. To them, changing the culture mindsets and being trained the right way, and not guessing on what comes next, was the biggest shortfall to project success.

Process Changes

The implementation of agile methodology requires organizations to change their culture in adapting to new processes and rebrand employee mindsets (Ajgaonkar et al., 2021). R3 provided the analogy "Can't teach an old dog new tricks". This sentiment was among all interviewees and several respondents noted that training at all levels was lacking on how to implement agile methods. Agile requires organizations to change how PMs approach project designs and how teams work together to accomplish tasks (Cooper & Sommer, 2018). R2, R4, and R8 noted challenges of personnel understanding what actions to be accomplished and owning the accountability of completing tasks on-time. Agile is not something that can be picked up quickly, it takes governance and training to educate employees, supervisors, and customers on how to apply agile methods (Sjödin et al., 2020). The lack of awareness is driving a decline in project success.

Agile experience is a combination of educational instruction and on-the-job experience (Constantinescu & Moore, 2019). R2 and R7 noted challenges of employees providing a false sense of resume experience when in fact, they did not have validated agile experiences. According to R8, PMs must know their assigned employees to align

the right resource skills to the right task. R2 notes that if tasks are not assigned correctly, many employees will not deliver on-time, or provide a quality widget. The awareness of providing valuable agile processes is not fully realized until employees can be trained to establish mental "habit-forming" traits (Goodomar & Mor, 2020). R8 recommended all levels to educate, practice, and improve their "muscle-memory" habits to change from waterfall to agile. The process to change habits requires leadership to adapt to newer agile approaches to the way they handle, fund, and communicate with all stakeholders.

Changing Mindsets

The agile mindset is not a process but a new way for stakeholders to approach project collaboration, communication, task management, and flexibility (Bushuyeva et al., 2019). Mindsets were a top theme that resonated across all respondents. R4 and R8 both said, "Changing the lens to a two-to-four-week sprint delivery versus a several month delivery schedule, is very hard for most managers". R8 supported that notion and said, "Generations are stuck on their proven experiences and are reluctant to change". The agile benefits of visibility and exposure threaten employees' pride in ownership and without education to see the entire benefit cycle, workers hold on to previously learned traits and processes (Magano et al., 2020). The building of project design structures that incorporate PMBOK and agile cultures, enables teams to adapt and deliver increased value back to their customers.

Organizational culture creates an atmosphere to foster employee behavior and sets expectations. An agile culture builds around key elements of: trust, communication, learning, and education (Galés & Gallon, 2019). Leadership's responsibility is creating

the right environment for teams to operate in unison and operate without fear of reprisal (Coaffee, 2019). The new environment enables employees to adapt quickly to changing requirements. R2, R4, and R7 aligned positive organizational culture to improve team creativity and cohesiveness. They felt a sense of belonging and transparency when they knew the entire team, top-down, was in together for the same goals. According to Bianchi et al.,(2020), improved relationships between all stakeholders reduces the risk of scheduling slips due to increased open communications. R9 said it the best, "A new agile culture instills a mindset of one-team, one-fight mentality, showcasing that we're all in it together".

Connecting Theme 2 to the Literature

Organizational culture change is inevitable. A conservative approach to cultural changes adheres to policies and laws and restricts alien ideas that would threaten traditional cultural ideologies. The technological, environment, and society influences have shaped industry cultures. R6 pulled out a smartphone, and said, "Phones today influence global business cultures by shaping how we schedule our planning events, perform remote teleconferences, and communicate with our stakeholders. History captures human resource challenges for businesses who have reluctance to change the way they communicate with employees (Sánchez-Bayón & Lominchar, 2020). The adoption of agile methods required businesses to empower team leads and allow forward leaning agile thinking to be adaptive and remove the fear of change (Holbeche, 2019). Employees today in an agile project design, embrace a transformational climate shift in the way the organization works together and marches towards customer success.

Connecting Theme 2 to the Conceptual Framework

PMBOK pinpoints organizational climate changes as a necessity for successful agile implementation (Rush & Connolly, 2020). Löwstedt et al. (2018) research focused on the PMBOK macro level changes to both organizational and individual level mindsets to instill cultural techniques that shaped the business atmosphere. R5 noted negative effects leadership had on organizational culture by not adopting PMBOK elements into any planning or execution phases. According to Sithambaram et al. (2021), majority of agile projects failed because organizational culture did not fully embrace best practices to implement improved communication, planning, and scheduling practices. R6 noted that over half of projects exercised rigid waterfall methods and did not fully embrace the agile planning structure over the project's entire lifecycle. Project failures that were attributed to poor project designs from the beginning led to inaccurate threshold criteria, and communication challenges over the entire system development life cycle (Stray et al., 2021). Stray's team highlighted that agile planning is consistent throughout project execution and not just at the beginning and should be a constant evolution beginning from requirements gathering to product delivery.

Theme 3: Effective Planning

The importance of effective planning was a leading theme by all participants as a critical element for project success. The PMBOK framework outlines effective planning at all design stages because it supports communicating key planning actions to facilitate a well-designed communication plan between all stakeholders (Verzuh, 2021). The five levels of agile planning: (a) product vision, (b) roadmap, (c) release plan, (d) iteration

plan, and (e) daily standup, enable organizations to decompose the overall effort into smaller, manageable sprints (Silva et al., 2019). According to R4, these smaller sprints allow teams to assign tasks, estimate task level of effort and time required for each task completion. R6 and R9 called this process a velocity scoring process to enable team members to organize tasks within the epics or stories of what needs to get done in each planning cycle.

Agile planning cycles are short, iterative processes where constant feedback occurs between workers, team leads, and customers (Pereira & de FSM Russo, 2018). The agile manifesto focuses on Tuckman's Stages of Team Development: (a) forming, (b) storming, (c) norming, and (d) performing to be able to be flexible to change and could re-scope based on new requirements or tackling new challenges (Jukich, 2018). The challenge of many projects, per R1, R4, and R8, is maintaining a qualified team throughout the project. Agile allows Project Leads to align people resources to existing or backlog tasks (Sithambaram et al., 2021). R3 and R8 shared failed leadership experiences where tasks were only assigned to higher-performing employees and did not fully utilize the full team. The inadequate balancing of resources resulted in schedule slips and low employee morale. All nine candidates highlighted failed effective planning but offered two strategies to improve effective planning. By communicating the plan, all nine candidates noted that having a unified communication plan allows stakeholders to know their role during execution. With built-in feedback cycles, supervisors will provide scheduled, reoccurring communication with employees.

Communicating the Plan

Communication is a cornerstone of effective planning. Project planning is a continual loop process to gather requirements, execute tasks, and continuing communication with the customer, re-plan, and execute tasks based on resources, schedules, and organizational culture (Hoffmann et al., 2020). From respondent interview responses, each PM maintained a tailored communication process but oftentimes, it was not part of a larger, project communication plan. A communication process (plan) outlines the design approach, timing, and processes that will provide a detailed level to effectively communicate with all stakeholders (Wang et al., 2021). The plan objective is to outline communication milestones with each stakeholder to identify project changes, risks, and new requirements.

PMBOK emphasizes multiple communication methods at each development stage (Maslennikov et al., 2022). During this study, it was highlighted from respondents that current organization cultures required virtual meetings or collaboration platforms as a viable solution to improve communications in a restricted environment. R1 and R2 captured a lesson learned that by establishing the communication plan upfront during the project kick-off, was a catalyst for project success. A communication plan is a flexible, updateable document that ensures stakeholders receive real-time information to allow for better informed decisions and awareness (Křečková et al., 2020). R5, R6, and R9 noted that communication flaws within the planning realm led to failed expectation management, conflict among team members, and overall failed projects.

Continual Feedback and Improvement

Based on respondent feedback, it is inevitable that day 1 requirements may not be the same on the final day of project delivery. Requirements planning is a continual agile process that continually sets expectations and goals for the team to achieve during project execution (Moyon et al., 2018). R2 highlighted that having a plan is not enough. It requires agreed upon expectations and buy-in from all stakeholders, including the customer. This theme supports the other two themes of communication and agile awareness because it requires a changed behavior and foresight to recognize opportunities to improve processes or project delivery. This approach combines traditional and agile project methodologies to streamline work and reduce wasted resources. Both R6 and R8 noted that when tasks become stagnant, the agile team lead could reevaluate the workload and pull pending tasks from the backlog. This action allows for rebalancing of resources through planning, but also improves the production process of task management.

The usage of a metric process enables teams to evaluate project progress and reflects on where the team can improve within production and delivery. Integrated feedback loops can improve organizational cultures because it provides opportunities for stakeholders to provide 360 degree internal and external reviews (Grijalvo Martín et al., 2020). Over half of the respondents mentioned this missing process as a critical deterrent to project success. In fact, R3 noted that over half of the follow-on projects failed because the organization did not instill a lesson learned workflow. Sadowski et al., (2018) research found that over ½ of new project designs did not have a lesson learned process

and failed because they were looking at the project from a new start effort scope, rather than looking at the project as a template design from previous projects. This process was highlighted through R7's analogy where leaders knew the individual building blocks but did not know the desired final structure. They were stuck in their waterfall experience by performing task by task in a serial fashion, not knowing they could do independent blocks of work that were not tied together. Agile allows for process improvement within the shorter cycles, to continually revalidate each process to improve speed, balancing of resources, and improve overall quality of work (Annosi et al., 2020). This iterative process improves progress through changing the organizational culture.

Connecting Theme 3 to the Literature

Effective planning within IT projects has been an organizational challenge over the years. According to Zidane and Anderson (2018), over 54% of all projects failed because of poor planning and scheduling using any of available project management methods. Agile sought to correct these challenges by recommending design structures to force PMs to implement frequent planning and communication engagements with the team members, leadership, and customers. The two emerging literature themes were changing organizational culture to implement new planning processes and processes to adapt swiftly to changing requirements. An organization's ability to create a project design and adjust as needed, is pivotal to project success (Bergmann & Karwowski, 2018). All interview respondents supported this historical challenge as stakeholders were inept to changing processes. A structured planning process should be communicated, documented and accepted by all users (Baiyere et al., 2020). History has shown that

stakeholder buy-in is critical to implementing new communication structures. Metz and Bartley (2020) noted that buy-in was an absolute necessity to project success by obtaining cooperation by all vested parties. These must-have traits have been incorporated in PMBOK and newer project management design methods.

Connecting Theme 3 to the Conceptual Framework

Agile lifecycle phases correspond to PMI's PMBOK guide for recommended steps for project designs. Agile allows for empirical control of process changes to allow for flexibility rather than PMBOK's traditional structured model (Verzuh, 2021). The PMBOK phases aligns agile processes to operational and business planning processes (Rosenberger & Tick, 2018). R2's master's degree experience in project management, showcased similarities between agile & PMBOK. The PMBOK design structure was used by R7 to change organizational culture and implement synchronization reviews to highlight project challenges or successes. Both frameworks begin a project by scoping the requirements to tasks. PMBOK provides processes that can be used in both waterfall's sequential method and in agile's iterative process to allow for flexibility in creating tailored project designs (Verzuh, 2021). The agile iterative process allows task managers the flexibility to speed up or slow down task assignments based on available team resources.

Contribution to the Business Practice

Projects are failing 55-75% of the time and IT organizations are struggling to apply agile methods to reduce IT project failures (The Standish Group, 2021). My study explored agile methods to improve project failures by improving communication,

planning, and organizational cultures. Organizations cannot continue to lose millions of dollars each year on IT projects that are poorly designed, poorly executed, and lack the communication to keep stakeholders vested and aware of project success (Chen & Soltes, 2018). The study results may have a positive impact on organizations by recommending approaches or strategies to improve organizational cultures that can improve project success. The benefit of collecting experiences of existing PMs in the field is to pinpoint community challenges and share how literature and project management philosophies can help mitigate project failures. Lessons Learned from PMs can help rebrand existing mindsets at all stakeholder levels to change task approaches, culture, and processes. The study objective is two-fold; change the IT business culture and to recommend traits to influence positive employee behavior while using agile methodologies to improve IT project success. Organizational change enables managers and customers can use these best practices and study findings to improve organizational performance by instilling a new way of doing business.

Implications for Social Change

The study's social change goal was to improve organizational communications, training, and IT project successes. The reduction of project failures will inherently increase business revenues and promote PM skills to effectively design and manage projects. The community's return on IT project success is opportunities for businesses to increase their workforce, pay higher salaries, and reduce product cost and services. The advancement of agile development within PMs, leaders, and customers will drive towards delivering customer satisfaction and increase business revenue (Tariq et al., 2020). The

alignment of all three study themes: communication, planning, and cultural changes, will enhance customer perception of the overall business values and could increase the organizations support to local community programs and charities.

Recommendations for Action

Mid-size IT projects failures are costing businesses millions of dollars each year due to incorrectly applied project management methods to projects (Kozak-Holland & Procter, 2019). Vrchota et al. (2020) team contends that if businesses do not adjust organizational processes adhering to project management successes than the continual decline in not project failures, but also the decline of business cultures and employee growth in project management. The awareness that (a) communication, (b) education, and (c) planning are vital to reducing project failures. The Standish Group, (2021) 2016-2020 report highlighting a 65% increase in business revenue due to successful project delivery with its customers. Businesses fail because of many different constraints, but recognizing which ones affect each organization is up to PMs, leadership, and its customers (Kerzner, 2017). Discussing and highlighting each constraint above the three that were mentioned, was outside the limits of this research.

Constraints identified by participants could be applied to multiple organizations, and not just IT projects. Leaders from other industries experiencing the same communication, education and planning challenges could enable PMs to be aware of those challenges and create processes to improve organizational culture and business profits. Agile processes should incorporate all stakeholders. Leaders could benefit from

study findings on building a cohesive team that communicates and strives for project success.

Recommendations for Further Research

As I highlighted in preliminary study design, the limitation of ensuring PMs had the experience level required was questionable. Further research could create additional selection criteria to ensure the entire participant pool had the study experience to ensure the validity of the research. Further recommendations would be to maintain interview discipline to ensure participants did sway off-track from the interview questions. A few respondents continued past the interview question and "pondered" they reason based on their experience. Another recommendation would be to create a few interview questions that focus on organizational constraints to help build recommendations based on data themes.

Reflections

I, nor my family, was not prepared for time and energy it would take to complete a doctoral degree. Throughout this four-year journey, I encountered many challenges. I almost gave up mid-way and with the help of my mentors and family, I persevered and stuck to a gameplan of completing milestone and milestone until I reached the 80% goal. Once I saw the end was in sight, I put all effort in data collection, analysis, and reporting my findings. The literature research and interviewing with participants, expanded my view on project management and by applying it to this study, I was able to align previous findings to real-world scenarios.

As a result of this study, my PM skills have improved, and my ability to organize my thoughts and writing into a scholarly manner has improved. The doctoral journey can be daunting at times, but I recommend to future doctoral learners, identify research that you are interested in, setting achievable and realistic milestones, and keep motivated for yourself.

Conclusion

In this qualitative multiple case study, I explored project management methods that PMs were using to reduce IT project failures. I collected data by posting a social media study survey and included exclusion criteria to select nine, experienced IT project managers within the northeastern region of the United States, who had successful agile experience in managing IT projects. I used an on-line data transcription service to match interviews to text and then used NVIVO to triangulate the data and reach a point of data saturation. Three major themes emerged from the participant pool of (a) communications, (b) cultural dependencies, and (c) effective planning. From the interview discussion and review of recent literature on project management theories and agile methods, several strategies were recommended to include (a) establishing a communications plan, (b) organizational and customer buy-in, (c) education and awareness at all stakeholder levels, and (d) establishing an adaptive project design that establishes roles and responsibilities. Several recent literatures highlight PMBOK's alignment to agile and showcases critical elements PMs can employ to deliver proven strategies for project success. The goal of this study was to improve future organizational cultures while implementing successful agile methodology designs to reduce project failures and improve business revenue.

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Appendix: Interview Protocol/Questionnaire

Interview: What practices do PMs employ to leverage agile strategies in successfully managing IT projects?		
Activity	Details	
Record:	Date/Time:	
	Location:	
	Interviewee Name / ID:	
Greet the participants Introduce the interview and set the stage.	"Good morning/afternoon, <participant's name>. My name is Tim Kirkland. Thank you for participating in my study that explores PM strategies in leveraging Agile strategies in IT projects. " "Before we start, I would like to describe few logistics of the interview and post-interview process. "	
Explain interview logistics and confirm the participant's consent	1. Remind about the confidentiality of the interview. 2. Ask for honesty and restate the value of openness for the success of the study 3. Explain that I will record the interview for the purpose of transcribing. Explain the steps I will take to assure confidentiality, data security, and destruction after five years. 4. Ask permission to contact the participant to validate the correctness of the transcription, quality of interpretation, or to share the study draft for feedback. 5. Read the consent form, sign, and reiterate the participant's right to leave the study at any time. 6. In case of remote video meeting, ask for verbal acceptance of the consent form 7. Share that the interview time is 60 minutes limit and warn that I may interrupt if the timing becomes an issue. 8. Ask permission for audio recording and turn on the recorder.	
Observe non-verbal queues Summarize and rephrase as needed	1. What type of project failures have PMs experienced? 2. What agile steps did you find critical for the project's results? 3. How has management changed organizational processes to adopt agile best practice approaches to project schedules? 4. What success criteria apply to each performance monitoring process within projects? 5. How are PM processes changing while using agile methodologies? 6. Suppose your project is not on a schedule. What agile project management actions would you take to get the project back to a successful state? 7. What agile methods enable customers to rate projects successful? 8. How are cost and accountability factored into improving project success rates using agile methods?	
Guide with follow-up probing questions to get more in-depth	1. If both Waterfall and Agile methods have been used in the past, what are the differences you experience in using both? 2. Based upon your experience, how, if at all, did the adoption of agile improve organizational culture?	
Wrap up interview thanking participant	1. Thank for informative responses 2. Ask for a short interview feedback	
Schedule a follow-up member checking interview		