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Towards a Model for Public Private Partnership (P3) Success: Understanding the Critical Success Factors of Public Private Partnerships (P3s) for Local Government Services and Infrastructure Delivery

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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

TOWARDS A MODEL FOR PUBLIC PRIVATE PARTNERSHIP (P3) SUCCESS:
UNDERSTANDING THE CRITICAL SUCCESS FACTORS OF PUBLIC PRIVATE
PARTNERSHIPS (P3) FOR LOCAL GOVERNMENT SERVICES AND
INFRASTRUCTURE DELIVERY

A dissertation submitted in partial fulfillment of
the requirements for the degree of
DOCTOR OF BUSINESS ADMINISTRATION

by

Antonio M. Lopez

2021

To: Interim Dean William Hardin
College of Business

This dissertation, written by Antonio M. Lopez, and entitled Towards a Model for Public Private Partnership (P3) Success: Understanding the Critical Success Factors of Public Private Partnerships (P3) for Local Government Services and Infrastructure Delivery, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

Miguel Aguirre-Urreta

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Date of Defense: May 17, 2021

The dissertation of Antonio M. Lopez is approved.

Interim Dean William Hardin
College of Business

Andrés G. Gil
Vice President for Research and Economic Development
and Dean of the University Graduate School

Florida International University, 2021

DEDICATION

I dedicate this dissertation to my mother, Astrid M. Lopez, who while is not with us here today, her spirit continues to live on within me and to my father Antonio J. Lopez, who has served as my biggest motivator and supporter in this endeavor. Also, I dedicate this to all my family, friends, and coworkers who all supported me throughout my doctoral journey. Lastly, I dedicate this dissertation to my classmate and friend who is no longer with us, Fred Searby.

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I want to thank all the members of my committee for their support and time in reviewing this dissertation and for their feedback. Also, I would like to thank Dr. Manjul Gupta for all his time, effort, and guidance as the committee chair in helping me make this dissertation a reality. In addition, I would like to thank Dr. George Marakas for his leadership and guidance throughout the DBA program and his commitment in developing practitioner-scholars. Overall, I found the program to be fulfilling in providing me with the skills and knowledge to become a practitioner-scholar that can help solve the big problems facing society today.

ABSTRACT OF THE DISSERTATION

TOWARDS A MODEL FOR PUBLIC PRIVATE PARTNERSHIP (P3) SUCCESS:
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Florida International University, 2021

Miami, Florida

Professor George Marakas, Major Professor

This study focuses on the identification of factors that influence the success of Public Private Partnerships (P3) for local government service and infrastructure delivery. A framework is presented integrating economic, relationship, and project management P3 critical success factors (CSF) identified from previous literature together with public agency entrepreneurial orientation introduced as a potential critical success factor which has been absent in previous P3 CSF literature. Also, the framework examines how external stakeholder influence from the government, private sector, and the end user moderates these success factors. Public administrators from municipalities and counties in Florida provided their perceptions of these critical success factors to empirically assess their effect on P3 success.

After analysis, the results show that the P3 relationship, project management and public agency entrepreneurial orientation are all critical to the success of the project. Moreover, government stakeholder influence has a significant impact on these factors and

their effect on P3 success. Private sector stakeholder influence has an impact specifically on project management and public agency entrepreneurial orientation's effect on P3 success.

When applied in a practical context, these findings provide a framework of factors that can be built upon and assessed by public agencies to help improve their P3 success rates, encourage P3 growth, and help with solving the infrastructure and service delivery crises facing the US today. Furthermore, the results are integrated into success building strategies for managerial application. Overall, this study contributes to the extant literature and theory by supporting public agency entrepreneurial orientation as a P3 critical success factor, confirming that stakeholders influence P3 success factors, and providing a framework of constructs comprised of P3 CSFs for future study and managerial application.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
AVE	Average variance extracted
CB-SEM	Co-variance based structural equation modeling
CFA	Confirmatory factor analysis
CSF	Critical Success Factors
FA	Factor analysis
NCPPP	National Council for Public-Private Partnerships
NIGP	National Institute for Governmental Procurement
NPG	New Public Management
PA	Public Administration
PLS	Partial least squares
P3	Public-Private Partnership
SEM	Structural equation modelling
SPV	Special Purpose Vehicle
US	United States
VFM	Value for money

1. Introduction.

The challenges facing the public sector in the United States in the next fifty years are great. In public service areas ranging from public infrastructure (rated D+ by the American Society of Engineers with \$4 trillion in needs), affordable housing, transportation, environmental sustainability, education, healthcare, and parks, these challenges are coming at a pace much faster than the government can handle on its own and taxpayers can financially support (“ASCE’s 2017 American Infrastructure Report Card | GPA,” 2017). These fiscal pressures will increase as the aging baby boomer population living on fixed incomes continues to grow and millennials, the largest population in US history, face their own economic challenges resulting from student loans and increasing livability costs. Ultimately, while these challenges are on a national scale, the burden is falling heavily on state and local governments that own, maintain, and provide services for many of these economic and social infrastructure elements. With approximately three (3) million people moving to cities every week, there is major pressure on their infrastructure, quality of life, health, and safety (Fishman & Flynn, 2019).

With these major challenges that lie ahead, states and cities are continuously considering alternatives for solutions to address these rapidly developing problems to deliver infrastructure projects and services efficiently while improving the quality of life for its citizens and limiting the direct fiscal impact to them. The reality is that implementation under a government sponsored funding model has been slow and the corresponding fiscal impact, both short and long term make it difficult for most states and cities. It is estimated that just sixteen (16) percent of cities can self-fund their needs in

infrastructure (Fishman & Flynn, 2019). However, there are opportunities to leverage alternative sourcing options such as leveraging the private sector along with new technologies and innovations to help cities optimize its resources and deliver projects efficiently.

One option, Public Private Partnerships (P3), are gaining popularity within states and cities. While it has been used as a procurement mechanism in the United States since the 1950s for infrastructure and urban renewal, it is currently experiencing a P3 renaissance period with over \$36 billion worth of projects saving taxpayers twenty (20) percent for most projects over the last decade (Coalition, 2018). Even with this recent renaissance, the US P3 market is developing slowly and remains relatively young in comparison to other countries around the world (Casady & Geddes 2016; McNichol 2013). As an example, the United Kingdom, has taken full advantage of P3s averaging over \$6 billion annually in capital investment compared to the U.S., an economy six (6) times larger, is only at \$2.4 billion annually (PWC, 2016).

Additional benefits of P3s include an opportunity to break the public-sector monopoly, provide competition and flexibility into the development of infrastructure assets, extend access to technical, financial, and physical resources, and improve service quality, all while operating in growing uncertain policy environments (Elliott & Salamon, 2002, p. 31). At a local government level, this allows for infrastructure or services to be delivered quickly at low or no direct cost to the community while the private party bears the risk for financing the construction in exchange for potential profits from operations resulting from the improvement.

From a local municipal government level perspective in the United States, P3 implementation can vary from state to state and from city to city and experience with P3s is mixed. While some states and municipalities have adjusted their government arrangements and legislation to facilitate P3 implementation, others have not (La, 2016). Only 35 of the 50 states have P3 enabling legislation and a total of 12 of these have never implemented a single P3. State and local governments in 27 of 50 states (54 percent) have no P3 experience. Just four states: California, Florida, Texas, and Virginia account for 137 (62 percent) of all P3 project closures over the last 20 years (National Institute of Governmental Purchasing, 2016; Institute, 2018).

Some of the root causes for this unrealized potential for P3s have been found in their complex implementation and the lack of understanding of how to implement P3s successfully between stakeholders. Additional issues facing P3 implementation have been a lack of transparency in P3s, complex procurement, low P3 expertise amongst stakeholders, difficulties in cooperation amongst parties, equitable risk sharing, contracting challenges, insufficient private interest, and inflexible or no legislation. Overall, these problems have led local governments in the United States to shy away from the use of long term P3s (Martin, 2019; La, 2016).

From a business perspective, one way to address these implementation problems is to develop an understanding of what led to the success of the implementation of a P3 ex post its completion for future replication and decision making. There are many studies focusing on critical success factors in different country settings and applied to different infrastructure projects. However, there are no standard or universal empirically tested success models that can be readily applied for local government or stakeholder use to

evaluate P3s. Every government entity has a different approach of how to evaluate implementation. Location context, institutional goals, economic impact, and the type of project all are considerations in model development. (La 2016; Hardcastle, Edwards, Akintoye & Li, 2005; Ward & Sussman, 2005).

The absence of a conducive environment for P3 implementation in the United States can be directly linked to the overall perceptions of the complexity of P3 implementation, its problems mentioned herein, and the limited resources and research on a national level available to help facilitate implementation. An example of this limitation can be seen in the absence of P3 research in the U.S. as described in Osei-Kyei and Chan's (2015) paper on a review of studies of critical success factors of P3 projects. In this study, the U.S. had only two research centers, two researchers, and four papers published since 1990 on this topic. This presents an opportunity to also fill a research gap to better understand what drives the success of P3s with the goal of improving success across states and municipalities to address their ongoing public service and infrastructure challenges.

As such, this study proposes to address these problems through the development of a theoretical model that seeks to understand and group critical success factors ("CSF") of P3s into constructs that can be applied for future empirical study. This model is developed utilizing existing success factors adopted from Seghal and Dubey (2019), La (2016) and Li (2003) who developed models that tested for critical success factors for P3 implementation in India, Vietnam, and the United Kingdom, respectively. Additional factors of social entrepreneurial orientation (Dwivedi & Weerawardena, 2019) and stakeholder influence (Li et al., 2018) are introduced as critical success factors using

existing measures from research and applied. These additional factors gauge perceptions of public sector entrepreneurial behaviors such as innovativeness, proactiveness, effectual orientation, risk management, and mission orientation on P3 success and provide an understanding of how stakeholder influence moderates these success factor constructs with a goal of providing a model that can help local government agencies gauge the potential success of a P3 project, understand how stakeholders influence the factors of P3 success, and in turn, improve their P3 implementation rates.

Specifically, this study seeks to answer the following research question: **What are the factors that influence the success of a Public-Private Partnership (P3) for local government services and infrastructure development?** Answering this question allows for the development of a framework that will support government project teams, enable them to transparently select a P3 versus a traditional procurement process, and to prepare P3 projects efficiently in early stages of development (La, 2016).

To develop this framework, it is necessary to identify a sampling frame and boundary within the United States that has enough P3 maturity that readily understands the factors that lead to successful implementation. One state, Florida, 21.8 million pop., is unique in that it is well-positioned to compete for private investment in infrastructure using P3s. Florida has P3 enabling legislation, Florida Statute 334.30. Florida's P3 legislation is broad and includes local governments. The State is one of only four states with significant P3 experience. In a twenty-year period from 1996-2016, the state closed 28 P3 projects, third most to Texas and California, respectively (Institute, 2018).

Following a comprehensive research methodology, this study seeks to answer the research question incorporating a review of existing literature on P3s and their critical

success factors, presentation of a conceptual research model with hypotheses outlining the predicted effects of success factors derived from literature, quantitative analysis of the data derived from a sampling frame of the state of Florida and its 67 counties and 412 local municipalities (n=479), and a discussion of the theoretical and practical implications of the results. Opportunities for future research are also outlined as part of this study.

2. Literature Review.

2.1 Understanding P3s: Definition and Process

Public-private partnerships have been around as early as Roman times. In one of the earliest examples of P3s, Caesar Augustus entered a partnership with the Salassi tribe, of Celtic origins residing in the Alpine region of Northern Italy, to collect tolls in exchange for the tribe's management and assistance of travelers crossing the Saint Bernhard pass (Napoleon, 2017). Today, P3s are utilized in a variety of applications, mainly for public infrastructure development. The Roman example mentioned is simply an early form of a transportation P3 in which a private party designs and builds a toll road for public use and collects the tolls from its use and operations to offset its capital cost, ultimately making a profit long term from its operation.

From a purely classical definition standpoint, P3 literature continually states that there is no universal or classical definition for a P3 as it can be used in different ways and situations. It can vary from country to country and in organizations such as the World Bank and National Institute for Governmental Procurement (NIGP). This could be purposeful as a universal definition could prove limiting to types of projects or purposes when applied to legislation. However, Wang et al. (2018) study, attempts to reconcile the definitions across literature and proposes that a P3 is a “durable complex cooperation

between public and private sectors aiming to supply infrastructure and public service. During the cooperation period, both public and private sectors should share their risks and benefits to achieve their mutual goals”.

The NIGP (2016) defines it as “A public-private partnership (P3) is a broad term used to describe public facility and infrastructure contracts that minimally include components of design and build (e.g., construction, renovation, rehabilitation) in a single contract. Components of financing, operations, maintenance, or management may be included within this single contract. A P3 contract allocates risks to the party (the government or the contractor) best able to manage the risks and may assign a higher level of responsibility for means and methods to the private partner.”

For purposes of this study, the definitions by Wang et al. (2018) and the National Institute of Governmental Purchasing (2016) are synthesized and presented as follows: “A public-private partnership (P3) is a broad term used to describe a long-term contract between a government agency and a private party for the provision of public facilities, infrastructure, and/or services. Components of financing, operations, maintenance, or management may be included within this contract. Both the government agency and the private party share risks and benefits during the contract term to achieve mutual goals.”

Since 1985, over three thousand (3000) P3 projects amounting to over \$900 billion have been completed (Kwak et. al, 2009). Projects range from social infrastructure such as schools, prisons, hospitals, and public housing to economic infrastructure such as roads, bridges, tunnels, seaports, airports, train and railway development, and highways (Yescombe, 2011). The practice is used heavily in European countries with the United Kingdom leading the movement and in Australia with one third

of its infrastructure expected to be developed using P3s (Duffeld & Raisbeck, 2007). In Canada, over twenty (20) percent of its infrastructure has private sector involvement. While P3 adoption has been trending as of late, the United States still lags in P3 implementation in comparison to its developed peer countries. Only twenty-eight (28) states have passed P3 enabling legislation. However, many experts predict that the United States will likely become one of the largest P3 markets in the world soon (Deloitte, 2013). Recently, it is undergoing a renaissance period with over \$36 billion worth of P3 projects saving taxpayers twenty (20) percent for most projects over the last decade (Coalition, 2018).

P3s are typically associated with sourcing approaches such as privatization, outsourcing, and collaborative governance. However, it is important to understand that all these approaches, including P3s, are different and unique in their characteristics as procurement mechanisms. Generally, P3s require a lower level of collective decision making than collaborative governance approaches but higher than outsourcing or privatization (Wang et al., 2018). There a variety of types of P3s identified throughout literature with a continuum of types that are dependent on the risk sharing, legal, usage, and financial arrangement between the public and private party. An example of this continuum of types is from La (2016) and adapted from NCPPP (2011), Kwak et al. (2009) and Gil (2013) shown below:

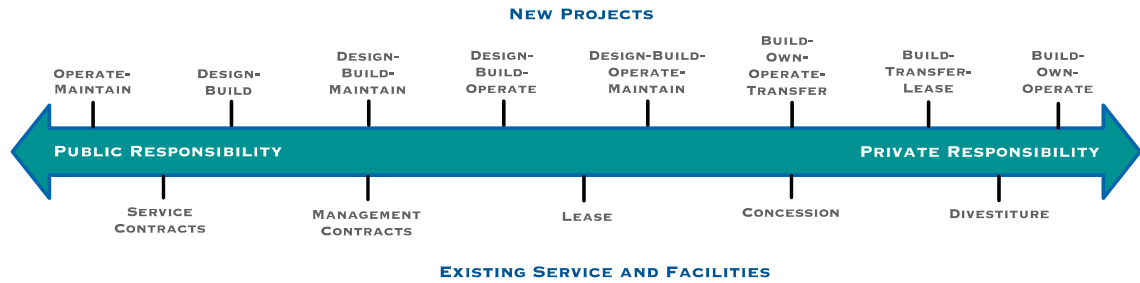


Figure 1. P3 continuum of types (Gil, 2013).

As a procurement mechanism, P3s differ from traditional procurement methodologies, such as contract management and fixed price purchasing where the public sector bears the costs and maintains a certain level of risk and responsibility. In a P3, there is a direct connection to private sector returns, performance, and project delivery over the contract term. The risk shifts for project completion and operations to the private sector. As a result, projects can be delivered faster and operate more efficiently with limited to no financial impact to the public sector. The incentive of private sector profits associated with P3s can prove to be a solution to the problem of the public sector infrastructure challenges long term (La, 2016; Davies & Eustice, 2005).

Generally, the two main parties involved in a P3 are the public and private sector. The public sector is comprised of the governmental agency (the client) and its customers (users) which a large part of generally consists of taxpayers. The public sector's role includes identifying potential projects; deciding on project type and developing its scope; creating the competitive bidding and tendering process; the selection of the firm that will perform the service; and oversight of the firm's performance in accordance with specified objectives (Unido, 1996). The private sector is represented by a company or a subsidiary of that company and can form a Special Purpose Vehicle (SPV) comprised of multiple

firms to raise enough capital for the project (Spackman, 2002). Typically, an SPV arrangement is usually established for one project only. Other participants in a P3 arrangement that assist the private sector are financial supporters, third party entities supplying goods, materials, and services, and experts in finance, legal matters, and technology.

Procedurally, a P3 generally involves several steps. The first is to identify the P3 opportunity through determining the public sector need, the profit generating capabilities for the private sector, and analyzing the market to gauge interest. Second, the P3 needs to be prepared through engaged project teams, project design development, contract drafting, and a solicitation prepared for tendering. Third, the procurement process is initiated, bidding process commences, and interested parties are invited to participate. Proposals are evaluated with a contract awarded to the best bidder after negotiations. Lastly, is the P3 implementation phase which includes all the awarded phases which could include construction, operations, management, and evaluation of performance under the P3 arrangement (EIB, 2012). This study focuses on the success factors that lead to the successful implementation of a P3.

2.2 Public-Private Partnerships Research: An Overview.

Over the past 40 years, P3s have received much attention from researchers worldwide from various disciplines and fields ranging from economics, public administration, and management. In the areas of economic and management, much of the focus has been on the specific actions behind P3s such as bidding and operations. Specifically, in economics, the focus has been on the economic efficiencies with bundling

services in lieu of how each step of the P3 process is completed by a single partner (Ross & Yan, 2015).

Another discipline with a large focus on P3s has been in construction and engineering where studies completed by Al-Sharif and Kaka (2004) and Ke et al. (2009) looked at P3 research trends and highlights research gaps over a ten-year period beginning in 1998. In their reviews, the issue of application and acceptance of P3s across a country context was evident with researchers reviewing a variety of implementation models. Tang et al.'s (2010) study reviewed studies performed over a ten-year period from 1998 to 2007 and took a comparative approach into research findings separating empirical and non-empirical studies. Recently, Wang et al. (2018) completed a systematic literature review from a public administration (PA) perspective following an evolution of P3 literature from 1983 through 2016. Their paper identified several themes and the main contributions of P3s across PA literature. Across these four studies, their general findings have some similarities.

As the focus of this study, understanding what influences the success of a P3 is a specific area that has garnered attention by previous researchers. Warsen et al. (2018) sought to understand what makes P3s work analyzing the influence of trust and managerial effort on the perceived performance of them in a Dutch context. They found that both factors are important for the performance and cooperation between partners of the project. However, the specific elements of what makes these factors effective, such as the management and trust building strategies are absent from their findings and provide for opportunities with this study to extend their research further to develop a framework that can be applied for managerial use. In addition, examining these factors in

a different country/state context can add validity to their findings while allowing for the integration of other relevant success factors found from previous research.

Most studies found that developed countries produce the most publications with the United Kingdom generating the most followed by the United States. General themes in P3 literature cover risk management, financing, governance, procurement, drivers for adoption, success factors, and performance evaluation. However, a main driver behind this study was outlined in Hodge and Greve's (2007) international performance review of P3s. The authors found that there was minimal independent evaluation being conducted on these projects and that more careful assessments were needed to ensure that governments maintain their effectiveness and relationships with the stakeholders involved. The goal should be to reduce the uncertainty around P3s and help ensure that these long-term arrangements are successful.

For purposes of this study, a review of these studies provided a starting point and framework to review publications over a period from 1998 and 2020 for critical success factors (CSF) for this literature review. During this review, the Seghal and Dubey (2019), La (2016), and Li (2003) papers were identified that would provide the basis for the framework that would identify the P3 success factors that are applied and tested for this study.

2.3 The Emergence of P3s: Theory behind the Practice.

Various theories have been applied to support the creation and emergence of P3s. Literature shows that generally three different approaches are taken when developing theoretical frameworks to discuss P3s. The first is viewed from an economics perspective. Transaction cost economics, property rights and principal-agent theories are

applied to analyze P3s from an optimal performance, contractual, and cost perspective. Second, it is viewed from a public policy lens. Governance theories such as public choice and New Public Management (NPM) are utilized to review the cooperation between public and private entities. Lastly, stakeholder and institutional theories take an organizational management view on P3s ensuring stakeholders receive equitable benefits and look at P3s needing legitimacy as a process at an institutional level (Wang et al., 2018).

From an economic view, the delivery of public goods and services are not sustainable in the long term by solely public or private means. If the private sector solely provided public goods, market failure would occur due to its inability to provide all the public goods needed, the desire for higher profits driving down consumer goodwill, and unequal access to social welfare goods such as education and healthcare. Conversely, if the public sector were to be the sole provider of public goods and services, eventually government failure would occur (Miller, 1999; Walsh, 1995). In addition, Black's (1948) public choice theory points out that government policies are developed by individuals who have an interest in how public spending occurs and are dependent on institutional conditions, hierarchy, and the amount of goods and services provided by the government. Black argued that as these interests in public spending grow greater it encourages collusion to allow for illegal ways for individuals within the government to profit from public spending.

Leibenstein's (1966) "X-efficiency theory" added to Black's (1948) theory on government failure stating that it was a result of the inefficient allocation of resources caused by the organizational structure of the government and its intervention in allocating

these resources. To avoid this, Leibenstein (1966) stated that the public and private sectors needed to work with one another to improve the efficiency of the public sector and use market resources to provide better services. Hence, the emergence of P3s in the US began during this time in the 1960's (PWC, 2016). Several recent studies have supported Leibenstein's theory. In Stacey (1997), X-efficiency theory is proposed to ensure that all of society's need are met through the combination of resources from all available sectors. Birch and Haar (2002) argue that to avoid government failure privatizing public goods is necessary and improves the overall delivery of public goods and services.

While the above theories support P3s as a mechanism to be utilized by government for efficiency and resource optimization in delivering services and provide cost savings to the government entity and to its constituency, they also serve as an important rationale for P3 implementation. Additional supporting theories include Transaction costs (Williamson, 1999; Coase, 1937) and Resource Based View (Barney, 1991) which have been used to explain the diversification strategy of an organization by considering that it can exploit resources by means of agreements and contracts with the market rather than expanding its boundaries. This decision to "Make or buy" a service and government focus on its core competencies for decision making outlines the potential of contracting municipal services and projects for generating sustained competitive advantages, such as more efficient service delivery and cost savings.

Voytek (1991), initiated the discussion of viewing public administration as business administration with contracting as a core function. However, discussions and questions arose about whether this approach truly lent itself to cost savings and a

reduction of public spending. Miranda (1994) sought to answer this question and included an evaluation of this question amongst expenditures, employment levels, and by the form of government administration. This study found that it does reduce expenditures, employment levels, and provides a direct costs savings to taxpayers.

While efficiency was a main driver of this movement in the 1990's, Boyne's (1998) study took a critical approach to these claims that contracting to the private sector led to cost savings and greater efficiency. In critiquing the conclusions made from previous studies that have suggested that the contracting of public services leads to higher efficiency, several deficiencies related to statistical models studying contracting results being used were pointed out. Specifically, Bel et al.'s (2007) study highlighted motivations for contracting public services and provided an analysis showing that previous studies have had low explanatory power recommending that generalizations should be made carefully. From this literature the basis of contracting for public services has its positive and negative considerations which have evolved over time.

This evolution of utilizing the private sector for public goods and services delivery could also be seen in public governance theories. Modern infrastructure P3s were conceived in the 1990's New Public Management era in which government was using private sector models to be run more like private business like Voytek (1991) (Casady et al., 2019). However, the complexity and contractual sophistication of infrastructure P3s led to its evolution to a larger paradigm which enabled governments to engage with several private agents (Greve and Hodge, 2010, p. 150). This theoretical paradigm is known as New Public Governance (NPG). NPG captures the fragmented and uncertainty of public management in the 21st century and understands the legitimacy and

interrelatedness of both the policy making and the implementation/service delivery processes (Osborne, 2006, p. 384). In this paradigm, P3s may be viewed as a tool of NPG which provides infrastructure services through a large network of government and business connections.

To understand how public agencies can approach alternative service and infrastructure delivery modes while improving project success, Klein, et al. (2010), presented a framework analyzing public entrepreneurship behaviors in relationship to private entrepreneurship. While there are some similarities between the two, there are differences in definitions and objectives, environmental selection, and the goals for economic gains. Four levels of analysis are proposed which outline the “rules of the game”, the development of new public organizations, the creative management of public resources, and the spillover of private actions to the public domain (Klein et al., 2010). Through analysis under this framework, Klein et al. (2010) proposed that a theory of public entrepreneurship can be established. With their public/private interaction, P3s are prime opportunities to measure public entrepreneurial activity in which Klein, et al.’s (2010) framework can be applied in construct development for further theoretical development. The study proposes that research on entrepreneurial behaviors within partnerships clarifies public entrepreneurship. Specifically, “firm-government interactions are where much of the action of contemporary exchange resides, and thus, a nuanced and sophisticated theory of public entrepreneurship will increase both the theoretical rigor and practical relevance of our management discipline” (Klein et al., 2010).

Another theory that applies to the emergence of P3s is stakeholder theory. Stakeholders play a key role in P3s and are defined as any individual or organization who may impact, or be impacted, in a positive or negative manner through a project's lifespan (PMI, 2008). Clarkson (1995) outlined that corporate success is based on stakeholder satisfaction which has an influence on that success. In projects like P3s, there are various internal and external stakeholder groups ranging from government, the private sector, and the end user that may have an influence on the project (Takim, 2009). It is essential that these groups be prioritized depending on their influence levels on the decision-making process to balance the interests of these groups to ensure seamless project completion (Li et al., 2018).

From a global perspective, these theories support the emergence of P3s and the need to enhance their success for resource optimization, efficiency, and cost savings. This was evident in Yehoue et al. (2006) who conducted a study of private investment in the public sector of 85 countries utilizing World Bank data from 1990-2003. The study showed that the motivators for profit for the private sector and efficiency along with savings for the public sector are necessary for P3 success as neither party can assume all costs and risks to deliver public infrastructure on their own. Working together, both parties can seek equity amongst costs, risks, improved goods and service delivery, support transparency, and show the advantages both sectors provide to each other. Over the last two decades, the emergence of P3s have led to its implementation across the world and its use is expected to increase in both developed and undeveloped countries (La, 2016).

2.4 From Theory to Model: Developing a P3 Success Framework

With theory supporting the emergence of P3s as a viable procurement mechanism, this study seeks to understand what are the critical success factors that lead to implementation of this practice. Li (2003) developed an implementation model which considered the principal factors to consider in the first stage of the P3 process. According to Li, identifying these factors help in the development of evaluation and appraisal models to fully evaluate P3s for decision making purposes in a transparent way. The factors considered by Li are the reasons for P3 adoption; attractive and negative factors of adoption; critical success factors of P3 projects; value for money (VfM) drivers of P3 projects; and attractions for the private sector involvement of P3 projects. Various studies have been utilized to study these factors in a country context. Most have focused on factors individually and few have applied Li's complete model in a country context. La's (2016) study applied Li's complete model to evaluate all these principal factors leading to P3 implementation in Vietnam.

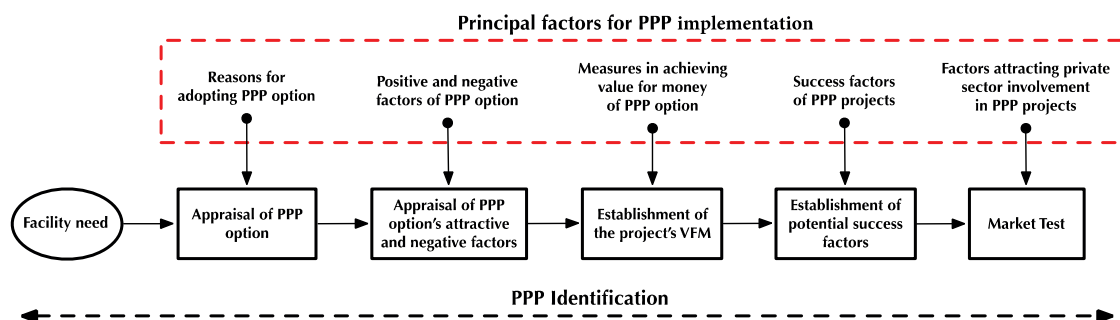


Figure 2. Principal factors of PPP implementation framework (Li, 2003).

Both the Li (2003) and La (2016) studies provide a conceptual framework for this study that is supported by substantive literature. However, studies utilizing this framework are limited in a United States context as proposed for this study. This

provides an opportunity to extend application of their framework further with an empirical evaluation of the critical success factors in a US context and make a unique contribution to literature by developing a P3 success framework that integrates existing CSFs into constructs that when evaluated may lead to managerial strategies that can increase the probability that a P3 project will be successful.

For purposes of this study, CSFs are defined as the few factors when applied to P3 scenario, have led to, and/or will actively contribute to, a profitable conclusion for one or more of the parties involved (Morledge & Owen, 1998, p. 567). From a project management perspective, critical success factors assess the organizational or managerial factors that lead to success or failure of a project and examine the reasons behind them (Santos et. al., 2019). At a project level, project success is defined as short-term project management success (efficiency) as well as achievement of the long-term goals of the project (effectiveness) (Serrador & Turner, 2015). Traditionally, the success of a project is related to project goal achievement with time, cost, and quality being the predominant goals. However, project success should be viewed from a multidimensional perspective considering the traditional perspective and weave in stakeholder perspectives and the firm's project processes (Rodriguez-Segura, 2016). This study applies Shenhar and Dvir's (2007) diamond model with survey items derived from Santos et al. (2019) to measure P3 success.

Several studies have reviewed CSF's in P3s in a country context. Starting from Li (2005) who studied 18 factors in a United Kingdom context and adopted by Cheung, Chan and Kajewski (2012) in Hong Kong and Australia and compared them to the British context; Cheung, Chan, Lam, Chan and Ke (2012) in Hong Kong and China; Chou et al.

(2012) in Taiwan; Olusola Babatunde et al. (2012) in Nigeria; Ismail (2013a) in Malaysia and Indonesia. Kahwajian, Baba, Amudi and Wanos (2014), Alinaitwe and Ayesiga (2013), Hwang et al. (2013), Chou and Pramudawardhani (2015), Li (2016) examined newly created lists of CSFs in Syria, Uganda, Singapore, Indonesia, and Vietnam, respectively. This study applies the CSFs found in Sehgal and Dubey's (2019) P3 CSF study in India.

In addition, this study builds upon the CSFs in Sehgal and Dubey's (2019) by introducing entrepreneurial orientation and behaviors as a potential CSF supported by Klein, et al.'s (2010) theory of public entrepreneurship and derived from Dwivedi and Weerawardena's (2018) study of social entrepreneurship. These behaviors include innovativeness, the development and promotion of new ideas and solutions to issues that are different than typical norms; proactiveness, the active review of the environment both internally and externally to account and prepare for future uncertainties; risk management, the ability to recognize and take reasonable risks and promote planning prior to risk taking; effectual orientation, an agency behavior of managing resource constraints to obtain an optimum solution; and lastly, mission orientation, the agency's dedication to its public mission. These behavioral success factors have not been traditionally considered in P3 CSF literature (Dwivedi & Weerawardena, 2018; Li et al., 2018). Also, the framework incorporates stakeholder influence as a moderator of these success factors supported by stakeholder theory and applies Li et al.'s (2018) factor quantifying stakeholder influence from the government, private sector, and end users.

3. Research Model and Hypotheses.

As previously outlined, the proposed framework utilizes factors and measures adopted from the following studies: Sehgal and Dubey’s (2019) study of critical success factors of P3s, Dwivedi and Weerawardena’s (2018) study of social entrepreneurship, Li et al.’s (2018) study on quantifying stakeholder influence, and Santos et al. (2019) study on factors influencing project success.

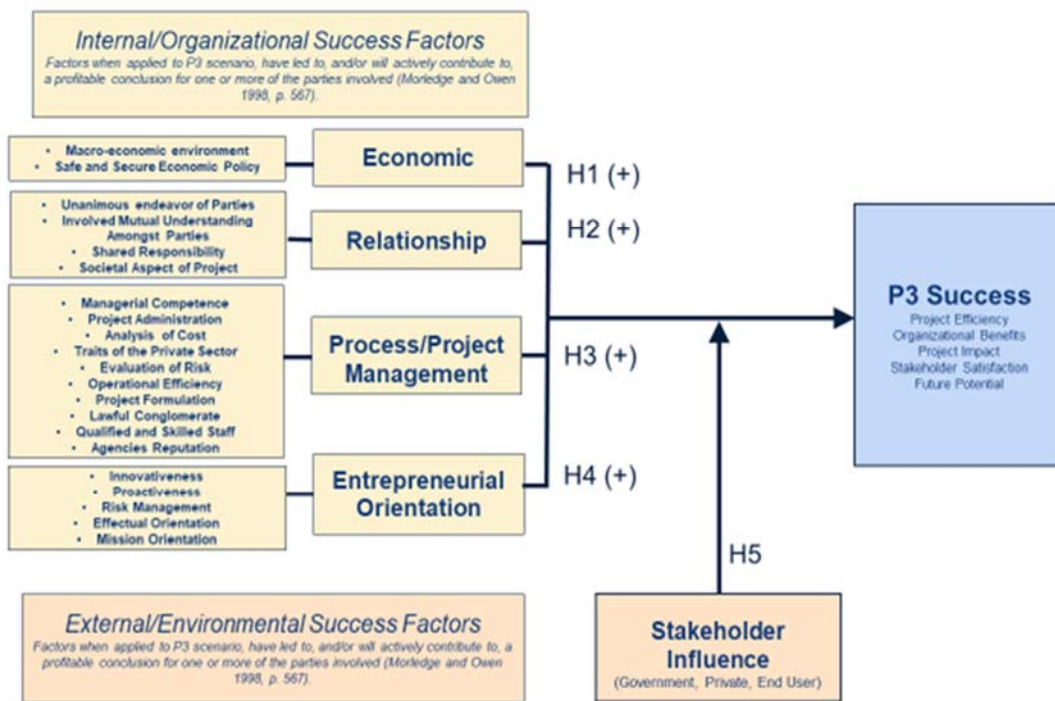


Figure 3. Preliminary research model.

The model categories and their respective hypotheses are defined as follows:

Economic CSFs. Why do governments adopt P3s? Predominant reasons are mainly economic. Public infrastructure requires large capital investment to satisfy ongoing demand and to address needs. However, most government entities are unable to support

all their capital investment needs on their own without incurring large debt obligations. P3s help reducing this burden by shifting the investment to the private sector while creating business for them (Li, 2003; La, 2016). For the success of a P3 project, both partners need to evaluate the economic conditions in which they are operating in both externally and internally and how it affects them as an organization entering a P3. As such, these conditions affect the transactions costs involved in the project and the decision whether to enter a P3 arrangement. Having stable economic conditions facilitate the P3 process and project delivery. Seghal and Dubey (2019) found that the economic success factors of having a favorable macroeconomic environment and safe and secure economic policy enhanced the success of P3s. Consistent with this stream of literature, this study proposes: *H1: Evaluating economic critical success factors positively influence the success of a P3.*

Relationship CSFs. P3s require a strong, cooperative relationship between the parties involved. In applying stakeholder theory, the parties play a key role in P3s and are defined as any individual or organization who may impact, or be impacted, in a positive or negative manner through a project's lifespan (PMI, 2008). The public and private sectors are stakeholders that play an important role in the success of P3s. It should be a committed relationship with shared responsibility between the parties and a mutual understanding working towards the same goals. These goals should aim towards providing a positive social impact to the public (Seghal & Dubey, 2019). In following this stream of literature, this study proposes: *H2: Evaluating relationship based critical success factors positively influence the success of a P3.*

Process/Project Management CSFs. The implementation of a P3 is a complex process and requires capable project management for its construction and operations to ensure success. It can ensure lower transaction costs and allocate resources efficiently. Seghal and Dubey (2019), highlighted managerial competence, which is people and task oriented with efficient leadership resulting in positive organizational results, as the most significant factor in this study of P3 CSFs. Their study also found that the project formulation process which requires a full study of the project prior to implementation and the project administration process involving the coordination between parties and project elements is also essential to P3 success.

Other important factors highlighted by Seghal and Dubey (2019), were analyzing costs in each project phase, understanding the traits of the private sector and its uniqueness, properly evaluating all the risks involved in the project, ensuring operational efficiency to deliver a high-quality project and services to end users, and having a lawful conglomerate that ensures the legality of the arrangement. Additionally, a qualified and skilled staff from both parties and the reputation of the agencies also influence project success. Considering the factors outlined in existing literature, this study proposes:

H3: Evaluating process/project management critical success factors positively influence the success of a P3.

Entrepreneurial Orientation. Klein, et al. (2010), presented a framework for analyzing public entrepreneurship behaviors in relationship to private entrepreneurship. While there are some similarities between the two, there are differences in definitions and objectives, environmental selection, and the goals for economic gains. Through analysis under this framework, support for a theory of public entrepreneurship can be established.

However, there has been limited attention and efforts to operationalize and quantitatively assess public entrepreneurial behaviors.

Dwivedi & Weerawardena (2018) proposed a social entrepreneurship construct with behavioral measures with the goal of describing the organizational behaviors of social purpose organizations in their strategic decision making. Social entrepreneurship differs from commercial organizations as they operate in uncertain conditions, are resource constrained, compete for funding, and their mission guides their strategic postures to provide social value (Dwivedi & Weerawardena, 2018). In applying effectuation theory, Dwivedi and Weerawardena (2018) outlines that effectuation can support social entrepreneurial behaviors as it allows entrepreneurs to maximize resources such as abilities, expertise, and networks in resource constrained environment.

Governmental entities have similar objectives as social organizations as they strive to provide public value in resource constrained environments. Hence, application of Dwivedi and Weerawardena's (2018) construct in a governmental context may provide insights into how public entrepreneurial behavior affects the success of a P3. Moreover, understanding whether these behaviors impact the success of a P3 project, may assist government agencies looking to pursue a P3 to build public entrepreneurial capability internally.

With their public/private interaction, P3s are prime opportunities to measure public entrepreneurial activity in which Dwivedi and Weerawardena's (2018) framework can be applied as a construct for further theoretical development. Klein, et al. (2010) proposed that research on entrepreneurial behaviors within partnerships clarifies public entrepreneurship. Incorporating the factors from this stream of literature, this study

proposes that: ***H4: A governmental entity that has an entrepreneurial orientation positively influences the success of a P3.***

Stakeholder Influence. Stakeholders play a key role in P3s and are defined as any individual or organization who may impact, or be impacted, in a positive or negative manner through a project's lifespan (PMI, 2008). In P3s, there are various internal and external stakeholder groups ranging from government, the private sector, and the end user that may have an influence on the project (Takim, 2009). Stakeholder influence levels on the decision-making process of projects, which include the assessment of critical success factors, need to balance the interests of these groups to ensure seamless project completion (Li et. al, 2018). Understanding the moderating effect of stakeholder influence on P3 success factors can help governmental entities properly manage and measure the influence of different stakeholders on critical success factors when determining whether a prospective P3 will be successful. In considering the logic presented in this stream of literature, this study proposes that: ***H5: The impact of critical success factors on P3 success is moderated by stakeholder influence.***

4. Methodology.

4.1 Construct Measures

This study builds on existing studies in five ways: (1) evaluates existing CSFs from literature in a US state setting (2) evaluates whether entrepreneurial behaviors by governmental entities contribute to P3 success, (3) determines the effect of stakeholder influence on P3 success factors, (4) proposes a decision-making framework that enhances the probability of success for P3 project and (5) assesses the impact of each of these factors within the model on P3 success. All measures are found in Table 1.

In the framework, the dependent variable is P3 success. It is defined as short-term project management success (efficiency) as well as achievement of the long-term goals of the project (effectiveness) (Serrador & Turner, 2015). Traditionally, the success of a project is related to project goal achievement with time, cost, and quality being the predominant goals. However, project success should be viewed from a multidimensional perspective considering the traditional perspective and weave in stakeholder perspectives and the firm's project processes (Rodriguez-Segura, 2016).

Taking this into account, P3 success is measured by applying Shenhar and Dvir's (2007) diamond model with survey items derived from Santos et al. (2019). This multidimension model accounts for both the traditional dimensions of project success as recognized in project management literature such as efficiency, cost, and time and dimensions incorporating the company's strategic objectives. The specific measures that comprise project success are project efficiency, organizational benefits, project impact, stakeholder satisfaction, and future potential.

As mentioned previously, a universal definition of what makes a P3 successful is difficult to establish as classifying what success is to a project may vary from project to project and from partner to partner. However, understanding what leads to success is critical to the continued growth and use of P3s by governments and their partners. CSFs are defined as those factors when applied to P3 scenario, have led to, and/or will actively contribute to, a profitable conclusion for one or more of the parties involved (Morledge & Owen 1998, p. 567). Understanding that P3s involve a complex process where its main objective is to obtain a balance between the public and private sector for efficiency purposes for the success of the project, CSFs overall should positively contribute to

achieving that balance (Wang, 2015). Twenty-one (21) CSFs are assessed to understand their effect on P3 success in Florida. These CSFs have been grouped into four (4) constructs by type and as generally outlined in existing studies: economic, relationship, process/project management, and entrepreneurial orientation, for data analysis purposes. The moderator is an index representing a factor of stakeholder influence for each of the three (3) primary stakeholders involved in a P3, the government, private sector/owner, and the end user.

To measure stakeholder influence, Li et al.'s (2018) study quantifying stakeholder influence on sustainable construction in China proposes an index factor of stakeholder influence. This factor is measured in two ways through a value of stakeholder attributes (power, legitimacy, and urgency) determined by the scale weight of each attribute and their sum for each stakeholder group (A) and an index of stakeholder vested interest in a project established by a value of their vested interest level and influence impact level (VII) as calculated below:

$$VII = \sqrt{\frac{v \times i}{25}}$$

Thereafter, a single construct measure for stakeholder influence as an index value for each stakeholder group is calculated as follows:

$$A \times VII$$

This study applies these measures to three separate groups that influence P3 projects: the government entity, the private owner, and the end user.

To assess the impact of the P3 success factors, a quantitative, deductive approach using a cross-sectional questionnaire survey was applied. The study uses a post-positivist

perspective that supports the use of quantitative experiments or survey research to assess and explain relationships among variables (Tashakkori & Teddlie, 2009). The cross-sectional survey tool utilizes a Likert scale format with the option to add qualitative comments for future research purposes. This method allows for the collection of data at one point in time and increases validity and generalizability of results (Yin, 2009). An informed consent was provided to the participants at the commencement of the survey.

To establish validity for the survey questionnaire, the questions and scale items were derived from La (2016) and Li (2003) and used by Cheung et al. (2009), Cheung (2009), Cheung et al. (2009), Cheung, Chan, Lam, Chan and Ke (2012), Ismail (2013), and Seghal and Dubey (2019) for critical success items (economic, relationship, and process/project administration); Li et al. (2018) for stakeholder influence items; Santos et al. (2019) for project success items; and Dwivedi and Weerawardena (2019) for entrepreneurial orientation items. Questions and items were tailored to the proposed research topic.

For further content and face validity, a copy of the survey was sent to fifteen (15) individuals (municipal employees and doctoral students) for an informed pilot. Feedback was provided on the wording of certain questions, grammar, format, and the overall survey experience. Changes were made to the initial survey tool based on this feedback in preparation for pilot testing. Recommendations from Podsakoff and Organ (1986) were incorporated to minimize common method biases, such as avoiding identifying a respondent's most successful project, instead the questionnaire asks to select one P3 project completed. Also, the informed consent provides for confirmed anonymity.

The questionnaire design consisted of two (2) parts and the survey is included in the appendices. Part one (1) provides a definition of a P3 for the respondent, collects municipal information, survey respondent organizational position, and asks for an evaluation of one (1) P3 or partnership project that the respondent has been a part of using the P3 success construct scale items and is assessed using a five-point Likert scale format (5 as Strongly agree, 4 as Somewhat agree, 3 as Neither agree nor disagree, 2 as Somewhat disagree, 1 as Strongly disagree). It also collects the data to evaluate the P3 critical success factor construct scale items using a five-point Likert scale (5 as Extremely Important, 4 as Very Important, 3 as Moderately Important, 2 as Slightly Important, 1 as Not at all Important). The survey evaluates stakeholder influence for each stakeholder group (government, private sector/owner, and end user) using a five-point Likert scale that ranks attributes of their influence (5 as Very High, 4 as High, 3 as Medium, 2 as Low, and 1 as Very Low). Also, it collects data for overall perceptions of P3s using a five-point Likert scale format (5 as Extremely Useful, 4 as Very Useful, 3 as Moderately Useful, 2 as Slightly Useful, and 1 as Not Useful at all). These scales provided the numeric data to examine factor impact.

Part two (2) of the survey collects specific P3 specific information such as whether the agency has implemented a P3, information on P3 types, quantities, and reasons for implementation. Lastly, a narrative captures the overall experience of one P3 based on respondent experience for future research purposes.

As outlined in MacKenzie, Podsakoff, and Podsakoff (2011), it is essential to validate measures adopted from existing research prior to collecting data for hypothesis

testing. To establish validity for the main construct measures in the survey, a pilot study was conducted.

4.2 Pilot Study

The pilot study was conducted using a web-based survey through the Qualtrics survey web platform and distributed via email with a weblink sent via email to a group of local government department employees, mainly municipal and county park and recreation directors, from across the state of Florida. An email database was developed for the survey distribution in a Microsoft Excel format from publicly available email address information on city websites.

In total, forty-seven (n=47) complete and usable responses were received. A principal axis factor analysis (FA) was conducted on the 23 items of five main constructs in the study (P3 project success, economic, project/process management, entrepreneurial orientation, relationship) with oblique rotation (varimax). Stakeholder influence items were excluded from the factor analysis as it is a single construct measure with an index value for each stakeholder group. The initial analysis presented a factor structure consisting of six (6) factors with eigenvalues over Kaiser's criterion of 1 and explained 75.40% of the variance in the data. However, the structure presented a high level of cross loading amongst items.

After the removal of items with significant cross loadings, a four-factor structure emerged with eigenvalues over Kaiser's criterion of 1 and explained 79.24% of the variance in the data. The scree plot was ambiguous and showed inflexions that would justify retaining the four factors. The items that cluster on the same factor suggest that factor 1 represents process/project management success factors, factor 2 represents

project success, factor 3 represents entrepreneurial orientation, and factor 4 relationship success factors. The process/project management, project success, and entrepreneurial orientation subscales all had high reliabilities, with all Cronbach's alphas above .80. The relationship subscale also had relatively high reliability, Cronbach's alpha = .74. Table 1 outlines the descriptive statistics of the pilot study data. Table 2 shows the factor loadings after rotation.

Table 1. Descriptive Statistics of Pilot Data (N=47)^a.

Construct (Reference)	Item Code	Model Item	Mean	SD	α
P3 Project Success Santos et al. (2019)	PS_1	Project Efficiency	4.06	1.10	.83
	PS_2	Organizational Benefits	4.09	.97	
	PS_3	Project Impact	4.00	1.00	
	PS_4	<i>Stakeholder Satisfaction</i>	N/A	N/A	N/A
	PS_5	<i>Future Potential</i>	N/A	N/A	N/A
Economic Seghal and Dubey (2019)	ECON_CSFI_1	<i>Macro-economic Environment</i>	N/A	N/A	N/A
	ECON_CSFI_2	<i>Safe & Secure Economic Policy</i>	N/A	N/A	N/A
Relationship Seghal and Dubey (2019)	REL_CSF2_1	<i>Unanimous Endeavor of Parties</i>	N/A	N/A	N/A
	REL_CSF2_2	Mutual Understanding Amongst Parties	4.40	.58	.74
	REL_CSF2_3	Shared Responsibility	4.09	.90	
	REL_CSF2_4	<i>Societal Aspect of Project</i>	N/A	N/A	N/A
Project Management Seghal and Dubey (2019)	PM_CSF3_1	Managerial Competence	4.26	.92	.92
	PM_CSF3_2	Project Administration	4.15	.91	
	PM_CSF3_3	<i>Analysis of Cost</i>	N/A	N/A	N/A
	PM_CSF3_4	<i>Traits of the Private Sector</i>	N/A	N/A	N/A
	PM_CSF3_5	Evaluation of Risk	4.15	.96	
	PM_CSF3_6	<i>Operational Efficiency</i>	N/A	N/A	
	PM_CSF3_7	Lawful Conglomerate	4.13	1.01	
	PM_CSF3_8	<i>Qualified and Skilled Staff</i>	N/A	N/A	N/A
	PM_CSF3_9	<i>Agency Reputation</i>	N/A	N/A	N/A
Entrepreneurial Orientation	ENT_1	Innovativeness	4.21	.86	.80
	ENT_2	Proactiveness	4.34	.73	N/A

Dwivedi and	<i>ENT_3</i>	<i>Risk Management</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
Weerawardena (2019)	<i>ENT_4</i>	<i>Effectual Orientation</i>	<i>N/A</i>	<i>N/A</i>	
	ENT_5	Public Mission Orientation	4.19	.88	

- a. Note. Items italicized and with N/A are subscale items did not load well in the presence of the other items in the factor analysis and are not factored in α of the scale.

Table 2. Exploratory Factor Analysis Pilot Questionnaire^a.

Item Code	Factor			
	Project Management	Project Success	Entrepreneurial Orientation	Relationship
PM_CSF3_1	.90	.21	.16	.10
PM_CSF3_2	.82	.16	.25	.17
PM_CSF3_7	.73	.29	.26	.03
PM_CSF3_5	.71	.20	.23	.26
PS_1	.14	.86	.24	.21
PS_2	.29	.82	.19	.01
PS_3	.27	.47^b	.18	.22
ENT_2	.30	.11	.74	.06
ENT_1	.15	.33	.70	.11
ENT_5	.25	.23	.61	.32
REL_CSF2_3	.01	.20	.25	.92
REL_CSF2_2	.38	.09	.04	.65

- a. Note. N = 47. The extraction method was principal axis factoring with an oblique (Varimax with Kaiser Normalization) rotation. Factor loadings above .4 are in bold.
- b. Note. Although, PS_3 value was low, it was retained due to the small and limited sample size and evidence from existing literature that the item will hold well in a bigger sample.

The pilot study displayed a factor structure validating the measures for four main factors influencing P3 success: P3 project success, relationship, process/project management, and entrepreneurial orientation. The economic subscale items did not load well in the presence of the other items in the factor analysis and for purposes of the main study was not considered as part of the final model.

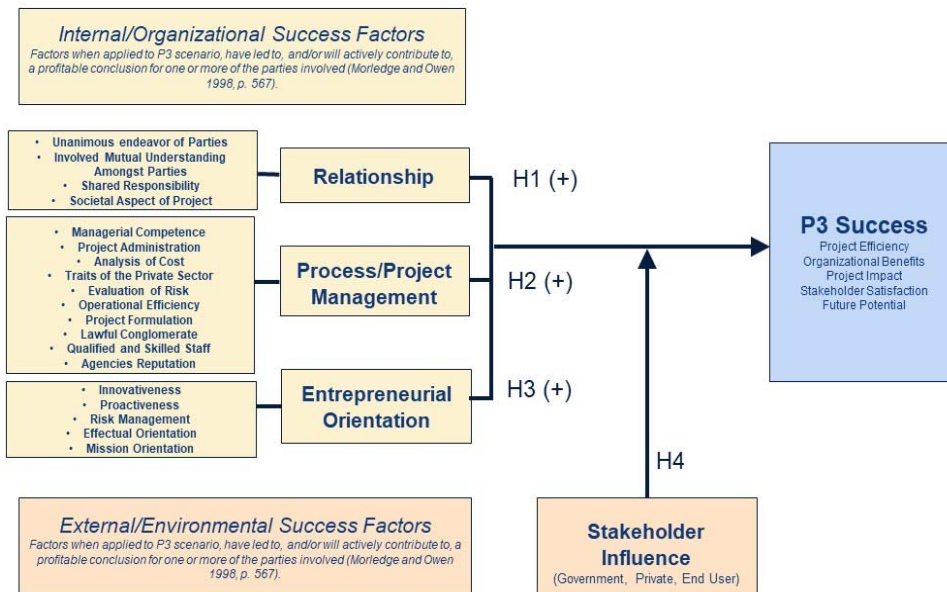


Figure 4. Main study model.

5. Data Analysis and Results.

For hypothesis testing, the main study survey utilized was web-based using the Qualtrics survey web platform and distributed via email with a weblink sent to a convenience sample of participants from all Counties (67) and municipalities (412) in the Florida, a total of 479 agencies. An email database of comprising mainly of government executive leadership such the chief municipal and county chief elected/appointed officers and their deputy/assistants of each entity, was developed and utilized for survey distribution in a Microsoft Excel format from publicly available email address information on city/county websites. At the end of the survey period, a total of 133 complete and usable responses were received with an overall 25% municipal/county response rate with 97 municipalities (23% of total municipalities) and 25 counties (37%

of total counties) represented. Obtaining additional responses was not considered after the survey period as the sample population was finite. Approximately 59% of the responses were from the city/county manager or the assistant manager. A majority (60%) of respondents had previous P3 implementation experience. Table 3 outlines that main study sample characteristics.

Table 3. Main Sample Study Characteristics.

Baseline characteristic	Full sample	
	<i>n</i>	%
Municipality	102	77
County	31	23
Job Position		
Manager/Chief Administrative Officer	66	49.6
Assistant Manager/CAO	13	9.8
Management and/or Budget Analyst	3	2.3
Finance/Accounting Officer	4	3
Department Head	29	21.8
Procurement/Purchasing Officer	2	1.5
Elected Official	1	.8
Other	15	11.3
Previous P3 Implementation Experience		
Yes	80	60.2
No	53	39.8

Data was also collected on the P3 projects implemented. Parks, sports facilities, roads/highways, and housing were P3 types with the highest implementation numbers. Approximately 105 respondents (79%) found P3s to be extremely and very useful with economic development, project development, and financial benefits to be the top three reasons for implementation. Table 4 highlights the project types.

Table 4. P3 Project Information.

Project Type	# Implemented
Parks	25
Sports Facilities	19
Roads/Highways	18
Housing	18
Other	18
Stormwater/Drainage	16
Public Buildings	15
Utilities	15
Cultural Facilities	11
Greenways and Trails	10
Environmental Sustainability	9
Waste Treatment Facilities	9
Smart Cities/Technology	8
Telecommunications	8
Water Treatment Facilities	8
Transit	7
Transportation Facilities	6
Educational Facilities	6
Healthcare Facilities	5
Bridges	2
Prisons	1
Total	234

For the survey data, a conceptual framework was developed utilizing the main study model to conduct a statistical analysis using structural equation modelling (SEM). SEM is a multi-variate analysis technique that can be used to characterize, evaluate, and examine relationships among measured and latent variables and the overall hypothetical model (Bollen, 1989). Measured variables can be directly observed and measured. Latent variables are unobservable, hypothetical, or theoretical, and derived from the measured variables. The method provides a better understanding of the phenomena under study than univariate and bivariate statistical techniques by using numerous methods including confirmatory factor analysis (CFA), multiple linear regression, path analysis,

and analysis of variance (ANOVA) to develop a model consisting of the relationships of measured and latent variables (Hair et al., 2006). It also offers unique benefits that cannot be replicated with first- generation statistical methods and works well with analyzing data from surveys, non-experimental, and quasi-experimental studies (Muhammad & Johar, 2017). Jöreskog and Sörbom (1993) presented the general SEM through three (3) matrix equations:

$$\eta(mxl) = B(mxm) \times \eta(mxl) + \Gamma(mxn) \times \xi(nxl) + \zeta(mxl) \quad (1)$$

$$y(pxl) = \Lambda y (pxm) \times \eta(mxl) + \varepsilon(pxl) \quad (2)$$

$$x(qxl) = \Lambda x(qxn) \times \xi(nxl) + \delta(qxl). \quad (3)$$

A SEM mainly consists of a measurement and structural models. Measurement models highlight relationships between the variables. Structural models examine the relationships between latent variables. Path diagrams are used to show the relationship between the two types of variables. These path diagrams outline the regression relationships and intercorrelations between the two types of variables (Ng et al., 2010). The process generally involves three (3) steps: model specification, estimation, and evaluation. Model specification involves specifying the variables and their relationships (Stephenson & Holbert, 2003). Estimation is the process to obtain improved parameter estimates. Model evaluation is necessary as latent variables are hypothetical in nature and may have low correlations. Evaluation helps improve model predictability or goodness-of-fit through the removal of variables with low correlations (Yuan & Tian, 2015).

The use of SEM is not unique to studies in the P3 research domain. Ng et al. (2010), used this approach in a feasibility evaluation and project success study of P3s in

Hong Kong. Shi et al. (2016) applied it to study CSFs in China. Muhammad and Johar (2017) proposed a conceptual framework to measure P3 success using SEM. Mwesigwa et al. (2019) developed antecedents of stakeholder management in P3s in Uganda using a PLS-SEM method. With its various applications supported in P3 research and its analytical benefits, SEM is an ideal analytical framework for this study.

A PLS approach to Structural Equation Modeling (SEM) was utilized as it is a “causal-predictive” technique (Jöreskog & Wold, 1982, p.270) that combines explanation and prediction to model estimation and provides solutions in almost any business-to-business scenario (Hair et al., 2016). It also works well with small (less than 200) and large samples equally well. PLS is a better alternative than the CB-SEM approach as it provides the predictive power that is needed to establish the relationships in the study model. Also, CB-SEM assumes normal distributions of data which is rarely the case in social sciences research (Hair et al., 2016).

Procedurally, the first step in the analysis for this study was a descriptive analysis on the collected data to derive the means and standard derivations of the model indicators using the computer based statistical software statistical package for the social sciences (SPSS).

Table 5. Descriptive Statistics of Main Study Data (N=133).

Construct (Reference)	Item Code	Model Item	Mean	SD
P3 Project Success Santos et al. (2019)	PS_1	Project Efficiency	4.03	.94
	PS_2	Organizational Benefits	4.01	.95
	PS_3	Project Impact	3.96	1.03
	PS_4	Stakeholder Satisfaction	4.11	.90
	PS_5	Future Potential	4.29	.93

Project Management Seghal and Dubey (2019)	PM_1	Managerial Competence	4.55	.62
	PM_2	Project Administration	4.62	.57
	PM_3	Analysis of Cost	4.52	.67
	PM_4	Traits of the Private Sector	4.32	.67
	PM_5	Evaluation of Risk	4.53	.63
	PM_6	Operational Efficiency	4.32	.70
	PM_7	Lawful Conglomerate	4.35	.77
	PM_8	Qualified and Skilled Staff	4.58	.64
	PM_9	Agency Reputation	4.40	.69
Entrepreneurial Orientation Dwivedi and Weerawardena (2019)	ENT_1	Innovativeness	4.26	.70
	ENT_2	Proactiveness	4.34	.69
	ENT_3	Risk Management	4.28	.76
	ENT_4	Effectual Orientation	4.29	.81
	ENT_5	Public Mission Orientation	4.35	.74
Government Stakeholder Influence ^a (Li, 2018)	STKINFGOV		9.34	2.95
Private Sector Stakeholder Influence ^a (Li, 2018)	STKINFPRI		11.33	2.85
End User Stakeholder Influence ^a (Li, 2018)	STKINFEU		10.25	2.72

a. Note: Stakeholder influence calculated using factor of stakeholder influence equation, see pages 26-27 (Li, 2018, p.165) min value>.01-max value 15

Next, the study framework was developed utilizing PLS-SEM and SmartPLS software (Ringle et al., 2015) as it provides SEM solutions of various levels of complexity in the structural model and/or constructs (Hair et al., 2016).

Within the PLS-SEM process, the first step uses confirmatory factor analysis (CFA) to confirm the validity of the items in measuring the latent variables. The second step is to add the factors and items into the structural model to determine the relationship between the variables through the regression or path analysis with the latent variables

(Hair et al., 2016). Constructs for purposes of the model were deemed to be reflective in nature as the indicators share a common theme and apply definitions outlined previously in existing literature (Petter, Straub, & Rai, 2007). Indicator reliability was reviewed using the outer loadings for each latent variable. All indicators had significant outer loadings above .5 and were retained. Internal consistency was assessed using composite reliability and the values were considered good for research purposes (Daskalakis & Mantas, 2008, p. 288). Cronbach's α were excellent for all constructs above .8 except for entrepreneurial orientation, which was acceptable, above .7 (Hair et al., 2016). While high composite reliability scores and Cronbach's α may be descriptive of multicollinearity, this is desirable for reflective constructs (Petter, Straub, & Rai, 2007).

Convergent validity was evaluated using average variance extracted (AVE) and discriminant validity by means of the Fornell-Larcker criterion (Fornell & Larcker, 1981). All AVEs were .5 or above which suggests convergent validity with the diagonal elements, the square roots of the AVEs, displaying a greater value in each respective construct than their associated correlations with any other constructs, providing for discriminant validity. Furthermore, cross loadings were examined, and they were all to be found to be less than their factor loadings establishing discriminant validity (Hair et al., 2016). Overall, the psychometric properties of the model were found to be acceptable. Tables 6 and 7 outline these values.

Table 6. Reliabilities and Correlations^a.

	α	CR	AVE	ENT	PS	PM	REL
ENT	0.71	0.81	0.50	0.68			
PS	0.92	0.94	0.76	0.31	0.87		
PM	0.90	0.92	0.55	0.59	0.25	0.74	
REL	0.81	0.87	0.62	0.38	0.40	0.54	0.79

a. Note. The square roots of average variance extracted (AVE) appear on the diagonals and are italicized.

Table 7. Cross loadings.

	ENT	PM	PS	REL
ENT_1	0.67	0.31	0.19	0.22
ENT_2	0.81	0.49	0.27	0.34
ENT_3	0.62	0.58	0.16	0.32
ENT_4	0.63	0.32	0.20	0.15
ENT_5	0.65	0.34	0.21	0.25
PM_1	0.44	0.79	0.20	0.48
PM_2	0.43	0.81	0.24	0.47
PM_3	0.39	0.74	0.17	0.42
PM_4	0.36	0.62	0.11	0.35
PM_5	0.38	0.67	0.07	0.44
PM_6	0.53	0.76	0.13	0.38
PM_7	0.45	0.78	0.22	0.36
PM_8	0.46	0.78	0.12	0.36
PM_9	0.50	0.74	0.25	0.36
PS_1	0.25	0.14	0.88	0.36
PS_2	0.26	0.23	0.90	0.36
PS_3	0.35	0.34	0.86	0.36
PS_4	0.19	0.17	0.81	0.29
PS_5	0.28	0.21	0.89	0.39
REL_1	0.31	0.33	0.42	0.83
REL_2	0.26	0.47	0.34	0.85
REL_3	0.33	0.51	0.28	0.81
REL_4	0.32	0.50	0.17	0.65

To test the hypotheses, an assessment of the significance and relevance of the structural model relationships was conducted utilizing a Bias-Corrected and Accelerated (BCa) bootstrapping procedure, as it is the most stable PLS-SEM method (Ringle et al., 2015), on 500 subsamples incorporating one tail *t* tests due to the directional hypotheses (Hair & Hult, 2016). The model was evaluated for its predictive ability based on the size of the R² value, which was .4, or 40% of the variance in P3 success is explained by the model. An R² value greater than .1 is deemed acceptable (Van Tonder and Petzer, 2018). Of the four main hypotheses proposed, three were supported as outlined in Table 8.

Table 8. Summary of Results^a.

	Hypotheses	Result	Significance
H1	Relationship critical success factors (CSF) will have a positive impact on P3 success.	Supported	$\beta=.47^{***}$
H2	Project management CSF will have a positive impact on P3 success.	Not Supported	$\beta=-.17$
H3	Governmental entity entrepreneurial orientation CSF will have a positive impact on P3 success.	Supported	$\beta=.32^{**}$
H4	Stakeholder influence moderates the critical success factors of P3 success.	Supported	
	Government stakeholder influence moderates the relationship CSF of P3 success.	Supported	$\beta=.44^*$
	Government stakeholder influence moderates the project management CSF of P3 success	Supported	$\beta=.25^*$
	Government stakeholder influence moderates the entrepreneurial orientation CSF of P3 success	Supported	$\beta=-.28^*$
	Private entity stakeholder influence moderates the relationship CSF of P3 success	Not Supported	$\beta=-.16$
	Private entity stakeholder influence moderates the project management CSF of P3 success	Supported	$\beta=-.33^*$
	Private entity stakeholder influence moderates the entrepreneurial orientation CSF of P3 success	Supported	$\beta=.43^{**}$

End user stakeholder influence moderates the relationship CSF of P3 success	Not Supported	$\beta=-.19$
End user stakeholder influence moderates the project management CSF of P3 success	Not Supported	$\beta=.10$
End user stakeholder influence moderates the project management CSF of P3 success	Not Supported	$\beta=-.13$

a. Note: * $p<.05$; ** $p<.01$; *** $p<.001$

The first hypothesis proposed that evaluating relationship critical success factors would positively impact P3 success. This was supported. P3s require a strong, cooperative relationship between the parties involved to help ensure project success. This relationship plays a key role in P3s and can have an impact in a positive manner through a project’s lifespan. Hence, the foundational word in these arrangements is “partnership”. To help with the development of these relationships, local government agencies should look at factors that develop this committed relationship with its project partners. This relationship shares project responsibility equitably and there is a mutual understanding working towards providing a positive social impact to the public.

For the second hypothesis, it was predicted that evaluating project and process management critical success factors would have a positive impact on P3 success. The implementation of a P3 is a complex process and requires capable project management for its construction and operations to ensure success. In applying Seghal and Dubey (2019), the items of project/process management referenced in this study were deemed to be essential to P3 success. However, when these items are viewed together as one construct, it was not supported as a significant factor to the success of a P3 within the context of this study.

The third hypothesis proposed that a governmental entity that exhibits an entrepreneurial orientation has a positive impact on P3 success. This was supported. Klein, et al. (2010), presented a framework for analyzing public entrepreneurship behaviors in relationship to private entrepreneurship. However, there is limited empirical study to support what behaviors measure public entrepreneurial activity in a P3 context. It was argued that Dwivedi and Weerawardena's (2018) social entrepreneurship construct with behavioral measures that describe the organizational behaviors of social purpose organizations in their strategic decision making could be applied in this context as governmental entities have similar objectives as social organizations as they strive to provide public value in resource constrained environments. Klein, et al. (2010) proposed that research on entrepreneurial behaviors within partnerships clarifies public entrepreneurship. Specifically, in areas of market and value co-creation in which leveraging the different capabilities of either party can enhance value (Klein et al., 2013). With their public/private interaction, P3s are prime opportunities to measure public entrepreneurial activity to enhance value. In the context of this study, governmental entities that exhibit the behaviors of innovativeness, proactiveness, risk management, effectual orientation, and mission orientation when viewed together have a positive influence on the success of P3 project.

Lastly, the fourth and final hypothesis predicted that P3 stakeholder influence moderates the critical success factors of P3 success. This was supported. Furthermore, it was supported specifically when the government and private sector stakeholders are involved. It was argued that stakeholder influence levels on the decision-making process of projects and then factors that lead to project success need to balance the interests of

these groups to ensure seamless project completion. Understanding the moderating effect of stakeholder influence on P3 success factors can help government agencies properly manage and measure the influence of different stakeholders on critical success factors when determining whether a prospective P3 will be successful. Figures 5-9 below highlight how these stakeholders influence the CSFs impact on P3 success.

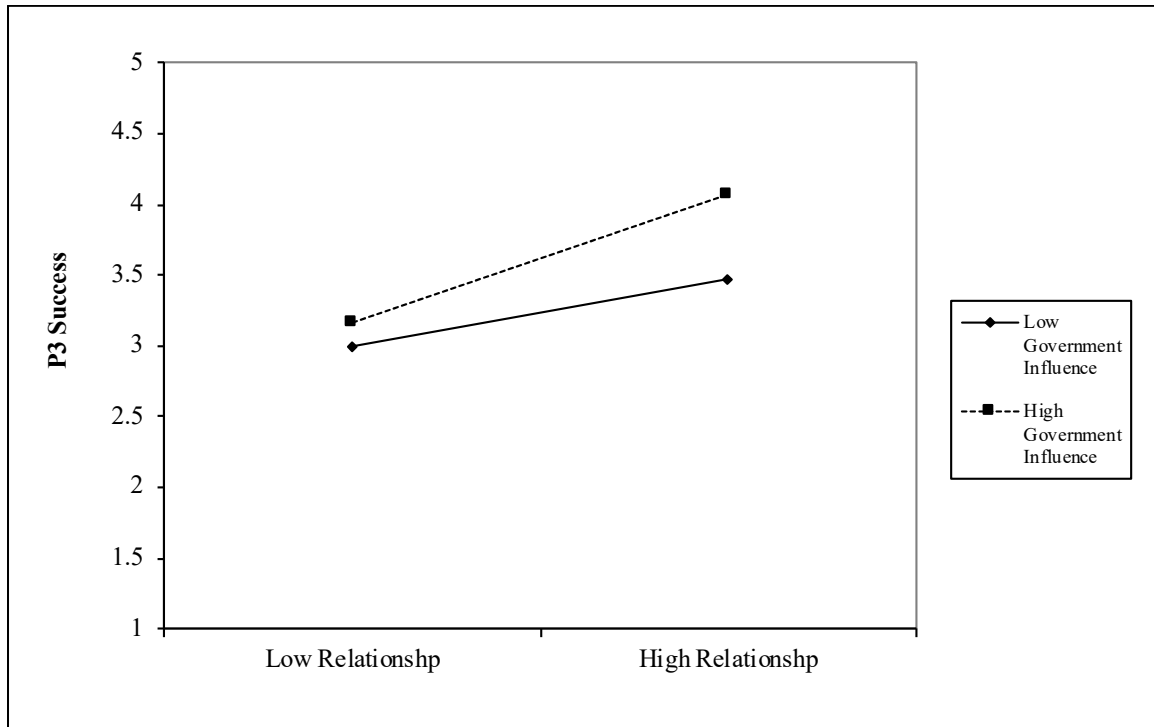


Figure 5. Government stakeholder/relationship CSF interaction.

In figure 5, there is a significant interaction between government stakeholder influence and relationship critical success factors ($p < .05$). The plot above shows the positive effect of the relationship factor on P3 success meaning that as the relationship factor increases, P3 success also increases. However, when government stakeholder influence is introduced, the slope is steeper when there is high government stakeholder influence than low, implying that the positive effects of the relationship factor on P3

success are stronger when government stakeholder influence is high rather than when it is low. This supports the elements that comprise the relationship construct, such as a unanimous endeavor amongst parties, shared responsibility, and the societal aspect of the project, and its positive effect on P3 success. In addition, it supports the important role public stakeholders have as the owner/client in a project and moderating influence on the relationship in a public private partnership. Overall, having a high level of government influence in the P3 relationship is critical in enhancing the probability of P3 success.

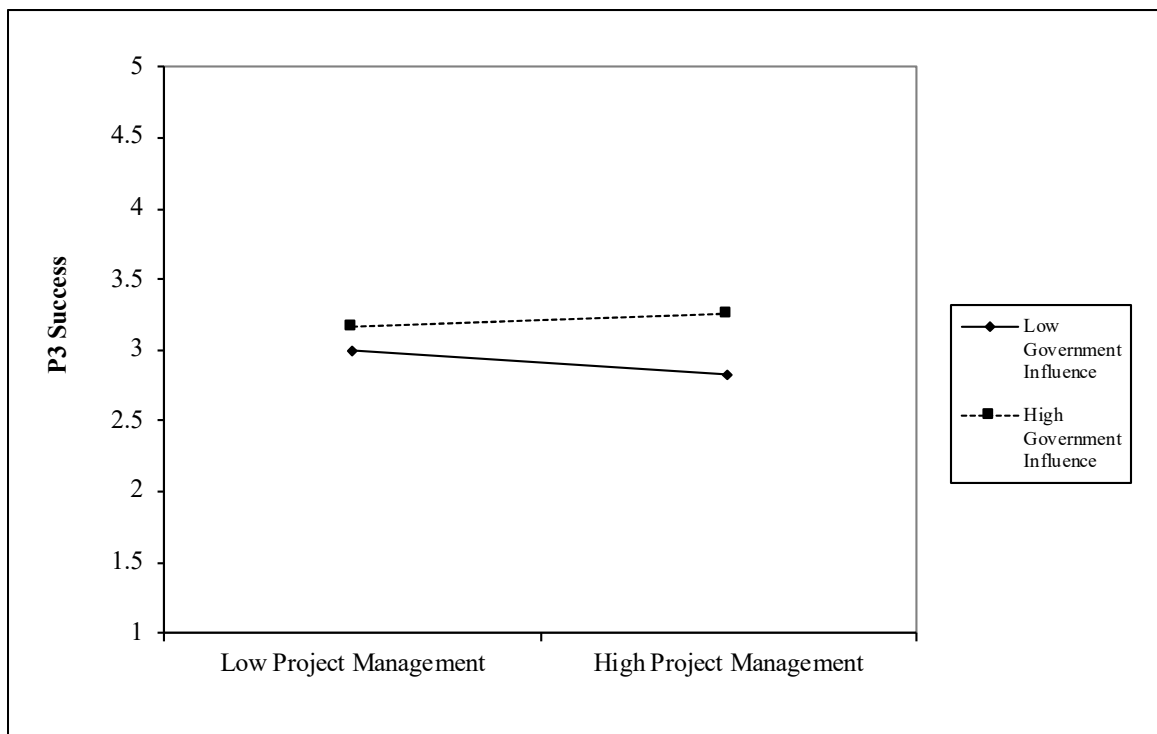


Figure 6. Government stakeholder/project management CSF interaction.

In figure 6, there is a significant interaction between government stakeholder influence and project management critical success factors ($p < .05$). While it was not supported as a standalone construct to be significant, project management becomes a significant factor when government influence is introduced. The plot above shows that

the line highlighting the effect of the project management factor on P3 success is nearly parallel to the x-axis when there is a high level of government influence. This indicates that when there is a high level of government influence there is little variance in the effect of project management on P3 success. Conversely, low government influence leads to lower P3 success when there is a high level of project management. As outlined in Li (2018), government organizations were found to be the most influential on the decision and evaluation process of construction projects. Hence, a higher level of project management requires ongoing decisions and evaluation from its most influential stakeholders, such as the public sector owner/client to ensure project success. Without it, low government involvement and influence in the project management process can have a negative effect on the success of the project, especially when project management needs are high, and decisions are needed to be made to move the project forward. Also, this finding supports the moderating effect of government stakeholder influence on the effect of project management on P3 success and adds support to Li's (2018) study findings of the importance of government influence in projects such as P3s.

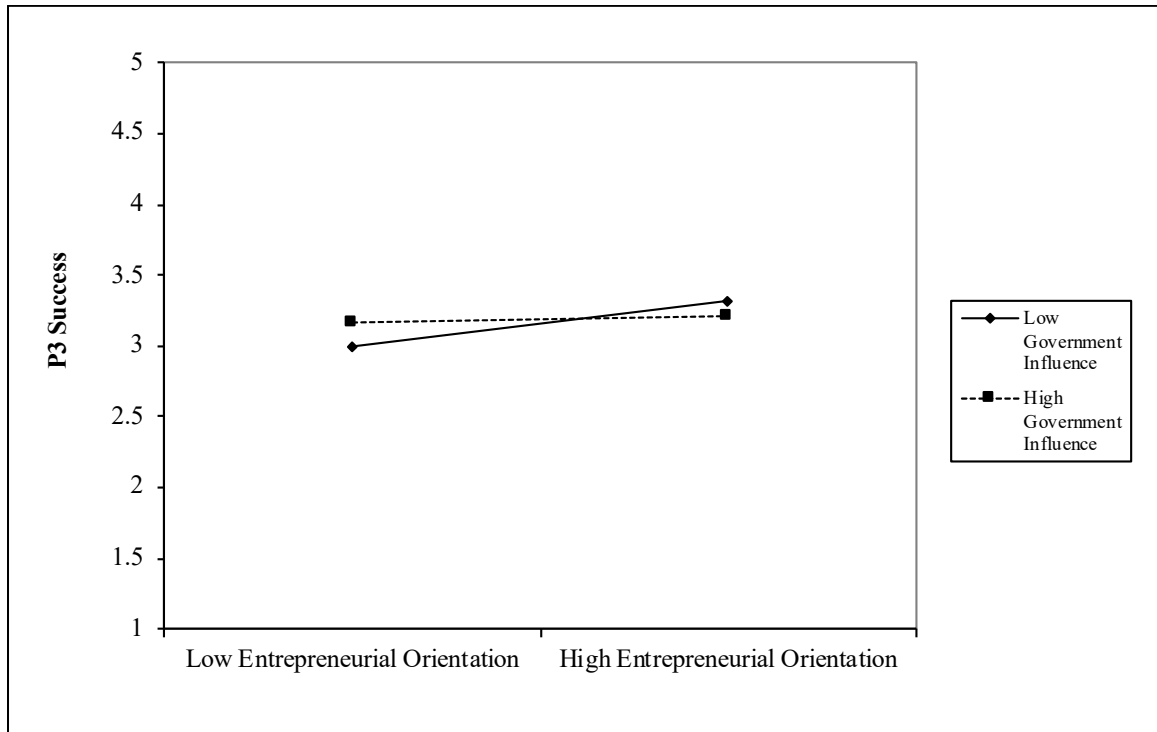


Figure 7. Government stakeholders/entrepreneurial orientation CSF interaction.

In figure 7, there is a significant interaction between government stakeholder influence and entrepreneurial orientation ($p < .05$). The plot above shows that the line highlighting the effect of the entrepreneurial orientation factor on P3 success, is nearly parallel to the x-axis, when there is a high level of government influence. This indicates that when there is a high level of government influence there is little variance in the effect of entrepreneurial orientation on P3 success. In comparison, the effect of the entrepreneurial orientation factor increases P3 success with lower government influence. This result supports the moderating effect government influence has on P3 success and shows that maintaining low government influence, due to governments' tendency to be bureaucratic, slow, and risk adverse, allows governmental entities to exhibit

entrepreneurial behaviors more freely helping improve the effect of entrepreneurial orientation on P3 success.

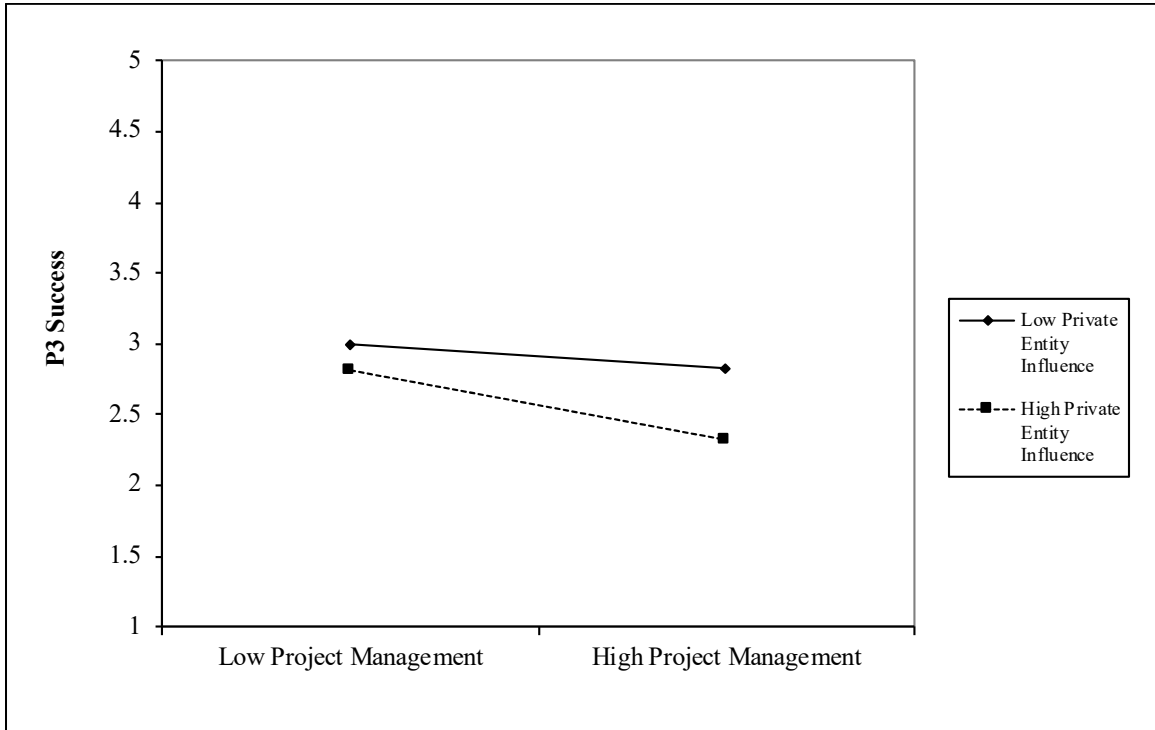


Figure 8. Private entity stakeholders/project management CSF interaction.

In figure 8, there is a significant interaction between private entity stakeholder influence and project management critical success factors ($p < .05$). While it was not supported as a standalone construct to be significant, project management becomes a significant factor also when private entity influence is introduced. The plot above shows that the effect of the project management factor decreases P3 success regardless of whether there is a high or low level of private entity influence. However, the slope is steeper when there is a higher level of project management required and there is a higher level of private entity influence. This emphasizes the role the private sector has in the project management process and the influence it has over the process. However, the

private sector has a negative moderating effect on the project management process. This is likely due to the public sector being the “owner/client” of a P3 arrangement in that they are the landowner with the need for the partnership and seek to have a greater influence over the project management process than the private sector would. Too much private sector influence over the process has a negative effect on the overall success of the project as it may limit the governments’ ability to effectively respond to project management needs and challenges, such as project delays, in projects with high complexity such as P3s.

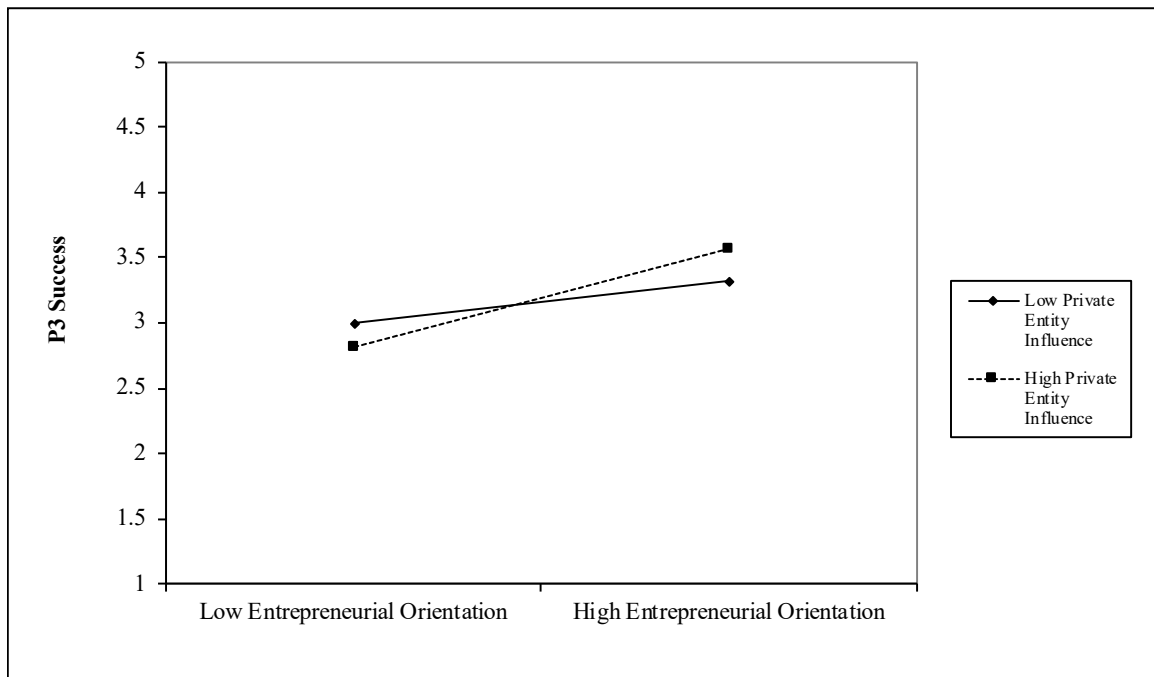


Figure 9. Private entity stakeholder/entrepreneurial orientation CSF interaction.

In figure 9, there is a significant interaction between private entity stakeholder influence and entrepreneurial orientation critical success factors ($p < .01$). The plot above shows the positive effect of the entrepreneurial orientation factor on P3 success, meaning that as the entrepreneurial orientation factor increases, P3 success also increases.

However, when private entity stakeholder influence is introduced, the slope is steeper for high private entity stakeholder influence than when it is low which implies that the positive effects of the entrepreneurial orientation factor on P3 success are stronger when private entity stakeholder influence is high than when it is low. This supports the positive effect entrepreneurial orientation has on P3 success and the moderating effect of private entity stakeholder influence. When the private sector influence is high in a project, high levels of local government entrepreneurial orientation improve P3 success. This is likely due to the capabilities of the private sector to be entrepreneurial and risk taking inherently. When their influence is high on a project, the government must also be able to have similar capabilities to co-create value and ensure the success of a P3 project.

6. Discussion and Implications.

This study provides a contribution to the existing literature on the critical success factors of P3s. While much of the literature is focused on measuring the effect of critical success factors independently, there is limited study on their effect when viewed together as constructs. Additionally, the introduction of public entrepreneurial orientation and stakeholder influence as critical success factors further contribute to existing research. This was done in a US state context not regularly seen in literature.

6.1 Theoretical Implications

In Seghal and Dubey's (2019) study, a series of 18 economic, relationship, and project management CSFs were presented as being important to the success of a P3. After making theoretical assumptions, these CSFs were grouped together into three constructs-economic, relationship, and project/process management- to determine if they had a positive effect on P3 success. After our assessment, the relationship between the

partners involved was deemed to have a significant positive effect further supporting Seghal and Dubey's (2019) findings and their use as a relationship construct for future application. Additionally, government influence further enhances the impact of the construct on P3 success, especially when there are high levels of government influence. Generally, the private sector can find it difficult in working with the government to ensure project delivery due to its cumbersome, bureaucratic process. As the owner/client of the project, the more the public sector is involved in establishing a strong relationship as a partner adds value. This finding reaffirms that P3s are indeed partnership based complex projects in which a stronger relationship amongst parties improves their success.

Interestingly, while Seghal and Dubey's (2019) study stressed that project/process management was essential to the success of a P3, it was not found to be a significant factor on its own. However, when government and private entity stakeholder influence was involved, it had a significant impact to the success of a P3 project. This adds support to their study while confirming its viability as a construct. Stakeholder influence levels on the decision-making process of projects must balance the interests of these groups to ensure seamless project completion (Li et. al, 2018). Based on this, the moderating effect of stakeholder influence on project management, emphasizes that project management requires stakeholder involvement to impact the performance of a P3. Here, the findings highlight that as the levels of agency project management are higher having low government influence can negatively impact the success of a P3 project. In a P3 arrangement the government is the owner/client of the project and they are responsible for approvals and oversight. According to Li (2018), government organizations are highly influential in decision making and evaluation in construction projects. Hence, the

more they are involved when project management needs are high, it can help mitigate the negative effect of not being involved enough and seamless project delivery is enhanced. Conversely, private entity involvement in the project management process has a negative impact as they have different goals than that for the government entity, i.e., profit vs. service delivery which may lend itself to “cutting corners” in project delivery. This is especially the case when the private entity’s influence is high when the agency project management levels are high. Too much private entity influence may limit the governments’ ability to respond to project management challenges such as project delays during the project further diminishing the success of the project.

Klein, et al. (2010) proposed that research on entrepreneurial behaviors within partnerships clarifies public entrepreneurship. Specifically, in areas of market and value co-creation in which leveraging the different capabilities of either party can enhance value (Klein et al., 2013). P3s are prime opportunities to measure public entrepreneurial behaviors as they involve due to their complexity, risk, and private entity involvement. However, the study of the effect of public entrepreneurial orientation in a P3 context has not been frequently seen in literature, if at all. The findings highlight that it does influence the success of a P3 project. A governmental entity that has an entrepreneurial orientation is better suited to manage the complexity and risk involved. Also, they can navigate the entrepreneurial posture of the private sector to ensure seamless project delivery. Additionally, both the government and private entity as stakeholders influence its effect. When government influence is low, due to governments’ tendency to be bureaucratic, slow, and risk adverse, it helps improve the significant effect of entrepreneurial orientation on P3 success when there are higher levels of entrepreneurial

orientation in the government organization. This finding highlights that government organizations improve P3 success when they are left to freely exhibit entrepreneurial behaviors such as innovation and proactiveness in the P3 process further adding support to public entrepreneurship theory and literature. Alternatively, the private sector is inherently entrepreneurial and risk taking. They have an enhancing effect on governmental entity entrepreneurial orientation's effect on P3 success, even more so when the agency has a high level of entrepreneurial orientation and the private sector influence is high.. This shows that governmental entities that have a high level of entrepreneurial orientation exhibit similar behaviors to that of the private sector co-create value and ensure the success of a P3 project.

The findings of this study also outline a potential framework that can be utilized to measure public entrepreneurial behaviors in government entities through its application in a P3 context. There has been limited attention and efforts to operationalize and quantitatively test a framework that can be argued as a theory that describes public entrepreneurial activity. This framework for a theory of public entrepreneurial behavior involves the measurement of innovation, proactiveness, risk management, effectual orientation, and mission orientation within public agencies.

6.2 Practical Implications

From a managerial perspective, governmental entities can consider this framework of critical success factors whenever they are evaluating whether a potential P3 project will be a prospective success or not. Below is a list of suggested strategies derived from the findings that may assist agencies develop their P3 assessment and decision-making capabilities.

- Formally assess the relationship between the parties involved. Is the project a unanimous endeavor and mutual understanding between the two parties? Is there a societal aspect to the project serving all parties? Is the responsibility equitably shared?
- Develop and implement relationship enhancement strategies such as establishing a project strategic plan or roadmap with all parties from the beginning, regular project meetings, communication policy, and celebrating project progress with all parties.
- Evaluate the relationship across all parties regularly and adjust to improve the relationship as needed.
- Formally assess the entrepreneurial orientation within the agency. Is the agency viewed as innovative and proactive? How much risk is the agency comfortable with? Are they managing resources effectively? Do they support the mission of the project and agency? What is the governmental policy and approach on entrepreneurship?
- Develop and implement strategies to enhance the entrepreneurial orientation of the agency such as encouraging entrepreneurial or project management training, establishing an innovation policy, formalizing performance management procedures. However, avoid or limit practices and influences, such as political, organizational, or bureaucratic/regulatory, that stifle entrepreneurial behaviors.
- Evaluate the agency's entrepreneurial orientation regularly and adjust to improve entrepreneurial behaviors as needed.

- Seek to understand and identify the private entity’s entrepreneurial orientation. The measures in this study can be applied in an evaluation process of prospective partners.
- Formally assess the levels of involvement by the government and private entity stakeholders in the management of the project. Ensure that roles are clearly defined and are associated with the capabilities of each stakeholder. Are the roles assigned fair, equitable, and to each stakeholder’s strengths?
- Periodically assess the stakeholder involvement during the project and adjust involvement as needed.

While the above list is not exhaustive of the ways the findings can be applied in a practical context, it provides public agencies a starting point in evaluating a P3 project for prospective success. It is encouraged that agencies apply and tailor the framework and the findings of this study to their respective needs and capabilities.

6.3 Limitations and Future Research

This study provides important insights into what influences the success of a P3 project for local government infrastructure and service delivery. However, the findings should be interpreted keeping the limitations of this study in mind. First, the sample used for this study is solely representative of local municipal and county governmental entities in one state in the US. As mentioned previously, P3 project experience varies highly across states in the US with some states having yet to adopt the practice. Also, characteristics of other states and their agencies such as structure, form of government, and demographics may differ than that of Florida (Institute, 2018). Caution

should be utilized when applying the findings of this study to other states, countrywide, and internationally.

Second, this study mainly applies the CSFs from existing literature and is limited to the studies referenced herein. The items used for the survey scale items are not fully exhaustive of all critical success factors previously studied in literature. The introduction of new success factors to the framework may further influence the success of P3s and are an avenue for future study. Third, this study relied on a sample of participants to be comprised of mainly chief administrative officers of local municipal and county governmental entities. However, since people voluntarily choose on whether to be included in the survey, there might exist self-selection bias. Also, managers may have passed on the survey for another agency position to respond on their behalf. Perceptions of these factors may vary by position, agency, or political structure. Lastly, Seghal and Dubey (2019) highlighted that having stable economic conditions facilitate the P3 process and project delivery. Economic CSFs were not found to be of particular importance in this study. However, with P3s having strong economic component inherently, agencies should not interpret the findings in this study as eliminating economic CSFs outright from their assessments. Possibly, a larger sample size or different factors when combined may result in a significant effect.

As an agenda for future research, this framework may be extended through increasing the sample size and obtaining the perceptions of other stakeholders involved, such as the private sector. Also, the framework can be studied, and the findings compared in other states, nationally, or in an international context. Another avenue for research is to further validate the findings of this study through qualitative study and

interviews of agency chief administrative officers. The introduction of new critical success factors to further enhance the effect of the overall model can also be considered. Additionally, the findings on public entrepreneurial orientation and stakeholder influence can be studied further outside of the P3 context to determine how they impact overall government operations generally. There may be opportunities to further develop and refine theories of public entrepreneurial orientation and stakeholder influence in future studies and in varied contexts.

7. Conclusion.

Overall, this study sought to answer the question, **what are the factors that influence the success of a Public-Private Partnership (P3) for local government services and infrastructure development?** After reviewing the findings of this study, relationship, project management with both public/private influence, and the governmental entity entrepreneurial orientation all were found to be critical to the success of the project. Moreover, an increased role of the government further enhances the relationship factor, and a lessened role enhances their entrepreneurial orientation. However, when project management needs are high, having low government influence can have a negative impact on P3 success. Hence, the government needs to maintain its influence on the project management process as ongoing decisions and evaluation is needed in projects as complex as P3s. Conversely, high private sector influence has a negative effect on the overall success of a P3 when project management needs are high as it may limit the governments' ability to effectively respond to project management challenges, such as project delays, in projects with high complexity such as P3s. However, high private entity influence can enhance P3 success when a public agency

exhibits a high public entrepreneurial orientation as the government must also be able to have similar capabilities to co-create value and ensure the success of a P3 project.

These findings when applied in a managerial context can help public agencies work towards improving their P3 success rates and growth and help with solving the infrastructure and service delivery crises facing the US today. Lastly, this study contributes to the extant literature and theory by supporting governmental entity entrepreneurial orientation as a P3 critical success factor, confirming that stakeholders influence P3 success factors, and by providing a framework of constructs comprised of P3 CSFs for future study and managerial application.

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APPENDICES

Survey



Informational Letter

Public-Private Partnerships (P3) Success Study

Hello, my name is Tony Lopez, Deputy Town Manager for the Town of Miami Lakes, FL and Doctor of Business Administration candidate at Florida International University. I am working with the College of Business on doctoral research focusing on Public-Private Partnerships (P3) in Florida municipalities and counties.

As a local government agency in Florida, we would like to invite you to participate in this study to better understand what makes a P3 successful. The main goals of this study are to understand P3 project success factors across the state and develop helpful models that will assist local governments in their P3 decision making. If you decide to participate, you will be one of approximately 479 managers in this research study. Filling out the questionnaire will take approximately 5 minutes of your time.

There are no foreseeable risks, benefits, cost or payment to you for your participation. It is expected that this study will benefit local government agencies in their decision making when considering P3 projects. Your answers will remain confidential and results will only be distributed in aggregate data format.

If you have questions regarding this study, you may contact me, Tony Lopez, at (786) 361-4614/email: alope133@fiu.edu or the principal investigator, Dr. George Marakas at (305) 348-5436/ email: marakasg@fiu.edu. If you would like to talk with someone about your rights of being a subject in this research study or about ethical issues with this research study, you may contact the FIU Office of Research Integrity by phone at 305-348-2494/email: ori@fiu.edu. Your participation in this research is voluntary, and you will not be penalized or lose benefits if you refuse to participate or decide to stop. You may keep a copy of this form for your records.

Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

Please click on the drop box to select your municipality or county.

Municipality/County

What is your current position? (Select one)

- Manager/Chief Administrative Officer
 - Assistant Manager/Chief Administrative Officer
 - Management and/or budget analyst
 - Finance/accounting officer
 - Department head (please include department name)
 - Attorney
 - Procurement/purchasing officer
 - Elected official
 - Other
-
-

Part I CSFs

When thinking of Public-Private Partnerships (P3s), please consider this definition:

A public-private partnership (P3) is a broad term used to describe a long term contract between a government agency and a private party for the provision of public facilities, infrastructure, and/or services. Components of financing, operations, maintenance, or management may be included within this contract. Both the government agency and the private party share risks and benefits during the contract term to achieve mutual goals.

An example of a P3 is where the public sector owns land/property and a private party seeks to develop the land/property for a mutual public/private purpose and private gain (ROI/profit).

We would like to know more about your experience with public-private partnerships (P3).

Think of a P3 or partnership project you have been involved with and provide your evaluation of the project based on the following statements.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The agreed upon scope, timetable, and cost were met	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical measures, functionalities, and specifications requested were met	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The project had a positive impact on staff, provided learning, growth and development of their skills and expertise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The project provided immediate benefits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The project provides long term benefits for the future of the community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How important are these critical **relationship** reasons for the implementation of a P3 or partnership project?

	Extremely important	Very important	Moderately important	Slightly important	Not at all important
Commitment of the parties involved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mutual understanding amongst parties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shared responsibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shared societal/public aspect of project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How important are these critical **process/project management** reasons for the implementation of a P3 or partnership project?

	Extremely important	Very important	Moderately important	Slightly important	Not at all important
Managerial competence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project administration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Analysis of cost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Traits of the private sector partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evaluation of Risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Extremely important	Very important	Moderately important	Slightly important	Not at all important
Operational efficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Legal Partnership/Lawful conglomerate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Qualified staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reputation of agencies involved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

When thinking of the **end user** as a stakeholder, how would you rate the following attributes as it pertains to their involvement in a P3 or partnership project?

	Very High	High	Medium	Low	Very Low
Power	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Legitimacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urgency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vested interest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impact of their influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How important are these critical **economic** reasons for the implementation of the P3 or partnership project(s)?

	Extremely important	Very important	Moderately important	Slightly important	Not at all important
Macro-economic environment (Overall economy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safe and Secure Economic Policy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Now, think of the behaviors within an organization that lead to the implementation of a P3 or partnership.

How important are these **behaviors** in the implementation of a P3 or partnership project(s)?

	Extremely important	Very important	Moderately important	Slightly important	Not at all important
Innovativeness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proactiveness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing with limited resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Extremely important	Very important	Moderately important	Slightly important	Not at all important
Public mission oriented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

When thinking of the private sector/owner as a stakeholder, how would you rate the following attributes as it pertains to their involvement in a P3 or partnership?

	Very High	High	Medium	Low	Very Low
Power	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Legitimacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urgency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vested interest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impact of their influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

When thinking of the government as a stakeholder, how would you rate the following attributes as it pertains to their involvement in a P3 or partnership?

	Very High	High	Medium	Low	Very Low
Power	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Legitimacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urgency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vested interest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impact of their Influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What is your overall perception of public-private partnerships (P3s) as a tool to address public infrastructure needs?

- Extremely useful
- Very useful
- Moderately useful
- Slightly useful
- Not at all useful

Part II P3 Specific Information

Has your agency implemented a public-private partnership (P3)?

Yes

No

What was your overall experience in implementing the P3 project(s) your agency was involved in?

- Extremely positive
- Somewhat positive
- Neither positive nor negative
- Somewhat negative
- Extremely negative

Please indicate the type of P3 development your agency implemented (select all that apply)

- | | | |
|--|---|---|
| <input type="checkbox"/> Road/Highways | <input type="checkbox"/> Stormwater/Drainage Construction | <input type="checkbox"/> Utilities |
| <input type="checkbox"/> Greenways/Trails | <input type="checkbox"/> Bridges | <input type="checkbox"/> Environmental Sustainability |
| <input type="checkbox"/> Transit | <input type="checkbox"/> Smart Cities/Technology | <input type="checkbox"/> Telecommunications |
| <input type="checkbox"/> Transportation Facilities | <input type="checkbox"/> Educational Facilities | <input type="checkbox"/> Waste Treatment Facilities |
| <input type="checkbox"/> Parks | <input type="checkbox"/> Sports Facilities | <input type="checkbox"/> Water Treatment Facilities |
| <input type="checkbox"/> Cultural Facilities | <input type="checkbox"/> Healthcare Facilities | <input type="checkbox"/> Housing |
| <input type="checkbox"/> Public Buildings, i.e. City Hall, Police Stations | <input type="checkbox"/> Prisons | <input type="checkbox"/> Other |
| | | <input type="checkbox"/> <input style="width: 150px; height: 15px;" type="text"/> |

How many of each type of development?

	1	2	3	4	5 or more
» Road/Highways	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Greenways/Trails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Transit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Transportation Facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Parks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Cultural Facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1	2	3	4	5 or more
» Public Buildings, i.e. City Hall, Police Stations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Stormwater/Drainage Construction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Bridges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Smart Cities/Technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Educational Facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Sports Facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Healthcare Facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Prisons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Utilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Environmental Sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Telecommunications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Waste Treatment Facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Water Treatment Facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
» Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What are the top THREE reasons that your agency chose to implement a P3? (select three)

- | | |
|--|---|
| <input type="checkbox"/> Economic development | <input type="checkbox"/> Avoiding public investment |
| <input type="checkbox"/> Political pressure | <input type="checkbox"/> Private sector knowledge/technical aspects |
| <input type="checkbox"/> Social pressure for new infrastructure/facilities | <input type="checkbox"/> Financial benefits |
| <input type="checkbox"/> Private incentives | <input type="checkbox"/> Project development benefits |
| <input type="checkbox"/> Shortage of government funding | <input type="checkbox"/> Other |
| <input type="checkbox"/> High quality of service required | <input type="text" value=""/> |

Please provide the details below of ONE of the P3 projects that have been implemented.

Project Name

Type

How would you describe your overall experience in implementing this project? (Please be as specific as possible)

May we contact you to further discuss your responses within this survey?

Yes

No

Thank you for your support. Please provide your contact information so we can reach you.

Name

Email address

Telephone Number

If you would like to receive the research results, please provide your email address:

FIU P3 Implementation Survey

Powered by Qualtrics

VITA

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Born, Madison, Wisconsin

- 1999-2002 B.B.A., Sports Administration
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- 2002-2005 M.S., Parks and Recreation Management
Florida International University
Miami, FL
- 2004-2014 Recreation Leader/Director of Parks and Recreation
Town of Miami Lakes
Miami Lakes, FL
- 2006-2014 Adjunct Professor, Sports Administration
St. Thomas University
Miami Gardens, FL
Courses taught: Principles of Leisure Services
- 2010-Present Adjunct Lecturer, Recreation and Sports Management
Florida International University
Miami, FL
Courses taught: Care, Maintenance and Design; Human Resources in Parks and Recreation Management; Leisure Services Marketing, Internships I and II
- 2014-2015 Director of Parks, Recreation, and Community Services
City of Jacksonville
Jacksonville, FL
- 2015-Present Chief Operating Officer/Deputy Town Manager
Town of Miami Lakes
Miami Lakes, FL
- 2018-Present Doctoral Candidate, Business Administration
Florida International University
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