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The determinants of private sector participation in PPP projects for infrastructure development in South Africa

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2022
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https://hdl.handle.net/10539/40563
Mangolele, Mikateko Nolly. (2022). The determinants of private sector participation in PPP projects for infrastructure development in South Africa [Master's dissertation, University of the Witwatersrand, Johannesburg]. WireDSpace.https://hdl.handle.net/10539/40563

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The determinants of private sector participation in PPP projects for infrastructure development in South Africa





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Year: 2022

Classification: Public

SUPPLEMENTARY INFORMATION

Project format:	Research article
Nominated journal:	
Supplementary files:	Data collection instrument – Survey
	Schedule of Survey Questions
	List of Sample Participants

Classification: Public

Acknowledgements

First and foremost, I am extremely grateful to my supervisor, Dr. Jacques Totowa, for his invaluable advice, continuous support, and patience during my MBA study. His wealth of knowledge, experience and drive for good-quality work have inspired me to deliver a good-quality academic research study that I will cherish at all times. I would also like to thank the members of the WBS MBA administration for their guidance and support throughout my MBA study period.

A sincere thank you to Associate Prof. Suria Ellis for her assistance and support, and I am deeply grateful to Ruben Mitchell, who supported me with language editing to complete my study.

I would also like to express my sincere gratitude to my parents, Elizabeth Mangolele & James Mangolele, my siblings for their continued support, for always listening and for being a sounding board at all times.

Finally, my sincere appreciation for my partner, Mr. Laurent Bouchacourt. He has given me tremendous understanding and support over the past few years and allowed me to complete my study.

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ABSTRACT

Infrastructure projects have been key to South African economic growth and enhancement of service delivery.The backlog in essential infrastructure projects requires billions of rands and has a huge burden on public debt. The South African economy is constrained by inadequate investment, ineffective operations and inadequate maintenance of existing infrastructure. PPPs is crucial in upgrading the overall infrastructure in South Africa and private sector can play a more significant role in PPP infrastructure projects.This study seeks to investigate the factors motivating South Africa's private sector participation in PPP projects as well as mechanisms for incentivising private sector engagement in PPPs.

The findings of the study indicate that there are specific factors that will motivate and accelerate private sector participation and investments for infrastructure development in South Africa. The key factors for motivating private sector participation include good PPP framework and regulations, Bankable PPPs, good Risk management and allocation, long-term approach to PPPs, Long term commitment and support from the South Africa Government and adequate & early consultations with key community stakeholders.

This research has more credence given the constrained South African budget fiscus and the infrastructure projects pipeline earmarked for PPPs within various sectors (e.g. transportation, health, water and energy) that will require large capital investments and therefore need to tap into private sector capabilities and potential to raise capital to achieve goals.

Key Words: Public Private Partnership, PPPs, Infrastructure development, Private Sector investment, Risk Allocation and Value for Money

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CHAPTER 1: BACKGROUND, PROBLEM AND PURPOSE

1.1. INTRODUCTION

The South African Government adopted the National Development Plan (NDP) in 2012 with the aim of eliminating poverty and unemployment and reducing inequality by 2030 (National Planning Commission, 2010). The NDP objectives are the provision of quality healthcare, the establishment of effective and affordable public transport systems, the supply of enough energy to support industry and households, and ensuring access to clean running water (National Planning Commission, 2010). The NDP states that infrastructure investment needs to grow from 21% in 2015 to 30% in 2030 (National Treasury, 2017a) for it to achieve its objectives.

South Africa has a well-developed infrastructure, but it shows ageing in some sectors such as transportation, energy and water. The energy sector has a mixed economy that is dominated by state-owned enterprises, with Eskom accounting for most of the production (Department of Energy, 2019). In the transport sector the state, through Transnet, owns and operates most of the ports, the national rail network and the petroleum pipelines that transport crude and other products to Gauteng and inland areas (Department of Transport, 2020). The water sector is largely state-owned, managed at a municipal level and not fully integrated at a national level.

South Africa's social infrastructure (i.e. housing, schools and hospitals) has grown substantially since 1994 to address the needs of the majority of the population. A combination of pre- and post-apartheid infrastructure had to respond to the institutional backlog and has faced pressure from increased urbanisation. In the past years, South Africa has focused on stimulating growth through active infrastructure spend. The roll-out of vast projects such as RDP housing or export-driven, manufacturing hubs such as industrial development zones (IDZs) as infrastructure investment was also an effort to benefit from the multiplying effect of PPP infrastructure projects, which would have a positive impact on GDP growth (Cwik & Wieland, 2010).

In 2004, National Treasury published guidelines on how to deal with projects under Public–Private Partnerships (PPP). The PPP model has been successful in South Africa with 34 PPPs concluded and many in the pipeline (National Treasury, 2017b), and the number of new PPPs have declined over the past five years, mainly due cancellation of projects in health and security industry (National Treasury, 2017a). National Treasury continuously evaluates ways to increase the PPP project pipeline and new strategies employed include streamlining implementation, reducing project planning periods, building partnerships with local and international development finance institutions

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for alternative infrastructure funding as well create opportunities for various sources of funding to encourage private sector participation (National Treasury, 2017a).

The South African economy is constrained by inadequate investment, ineffective operations and inadequate maintenance of existing infrastructure (Chege, 2001). The country needs to make large investments in infrastructure to stimulate economic growth if it wants to achieve the goals of the NDP (National Planning Commission, 2010).

1.2. PROBLEM STATEMENT

The traditional procurement process requires the government unit/department to define the need for infrastructure, the specifications, the scope of work, budgets and contracts (National Treasury, 2015). Tenders and expressions of interest (EOI) are commonly used to invite private sector bidders to submit their proposals or tenders. Bid adjudication committees evaluate the submitted bids according to set criteria, then infrastructure projects are awarded to the preferred bidders (National Treasury, 2015). After tenders have been awarded, the government department manages the contract with the supplier. The types of contracts may vary according to the different infrastructure projects and may include service contracts or management agreements (National Treasury, 2015). The challenge with the traditional procurement process stems from the requirement for government to raise funds from the national budget and implement the projects off-balance sheet, but this is not always possible given the fiscal constraints (National Treasury, 2015).

In South Africa, the traditional procurement process has been marred by corruption, governance challenges, inadequate sourcing and general skills limitations while some projects have experienced delivery delays, scope creep and over-budget issues (Creamer, 2020). In addition, the major contributor to disappointing infrastructure project outcomes has been inefficiencies within government systems. According to Creamer (2020), Eskom's Medupi and Kusile projects and the Gauteng freeway improvement programme are just some of the projects that followed traditional procurement process and delivered no value for money.

PPPs constitute a long-term contract between private parties and government entities for providing a public asset or service, with the private party bearing significant risk and management responsibility and receiving performance-linked remuneration (World Bank, 2022). The nature of infrastructure projects is such that they are long-life assets and require large, innovative capital/financing investment to go forward (Chege, 2001). Given the government's funding constraints, private participation to source alternative funding is critical to achieving infrastructure plans.

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This study postulates that the use of PPPs is crucial in upgrading the overall infrastructure in South Africa and that private sector can play a more significant role in government-driven infrastructure projects (Mavuso et al., 2022). The effect will be the reduction of the burden on the public purse (Mavuso et al., 2022). Furthermore, Mavuso et al. (2022) assert that even if the government invests all it can on infrastructure development,without the private sector support and particpation, the backlog in essential infrastructure projects will require billions of rands and will take longer time to complete.

Several pipeline infrastructure PPPs were announced by the South African government during the 2022 Budget Speech. The problem seems to be a slow uptake and low private sector investment in potentially lucrative PPP projects. Therefore, the aim of this study is to investigate why the private sector in South Africa seems reluctant to take part in PPPs with the government.

1.3. OBJECTIVES OF THE STUDY

The main objective of this study is to assess factors that drive the intention of the private sector in South Africa to participate in PPP: The secondary objectives are as follow:

I. To investigate the factors motivating South Africa's private sector participation in PPP projects.
II. To investigate mechanisms for incentivising private sector engagement in PPPs.
III. To assess factors that could stimulate investment and participation from business South Africa to accelerate the priority infrastructure projects.

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1.4. RESEARCH QUESTIONS

In assessing the value proposition offered by PPPs and factors driving the adoption of the PPPs by the private sector, we will investigate the following:

I. What are the factors motivating business South Africa's participation in PPP projects?
II. What mechanisms can incentivise private sector engagement in PPPs?
III. Which factors can stimulate investment and participation from business South Africa to accelerate the priority infrastructure projects?

1.5. ASSUMPTIONS

- The respondents of the study will be representatives (executives, directors and senior leadership) of the relevant organisations, with a general understanding of PPPs.
- The selected JSE entities within selected industries understand the need for PPPs for infrastructure development in South Africa.
- The JSE-listed company's representatives will be available to provide insights within the timeframe of the survey.
- The respondents will be open and honest with their answers and the information they provide during the study.

1.6. SIGNIFICANCE OF THE STUDY

Though there have been numerous studies done around the world and in South Africa on PPPs, very few focus on private sector participation.

This research has more credence given the constrained South African budget fiscus and the infrastructure projects pipeline earmarked for PPPs within various sectors (transportation, health, water and energy) that will require large capital investments and therefore need to tap into private sector capabilities and potential to raise capital to achieve goals.

Traditional procurement processes have their challenges, which include delayed delivery, overshooting budgets and failed infrastructure execution and implementation. The state capture atrocities and wounds also serve as a lesson given the billions spent by the state with no return on investment. PPPs will not only allow for alternative funding mechanisms but will also leverage on management, innovation and technical skills from the private sector, and hence need for accelerated partnerships with the private sector.

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CHAPTER 2: LITERATURE REVIEW

2.1. DEFINITION OF PPPs

PPP is defined as a contract between a public sector institution and the private sector, where the private sector performs a function that is usually provided by the public sector and uses state property in terms of the PPP agreement (National Treasury, 2017a). Part of the risk, including technical, financial and operational aspects, is transferred to the private party though government remains the owner of the assets (National Treasury, 2017a).

Although definitions of PPPs differ and place a different emphasis on different aspects, the PPP definitions suggests a need to establish agreements between public and private sector partners, resources, contributing skills and assets. Additionally, sharing of risks, rewards and wealth created through the partnership is key to PPPs success (Ittmann, 2016 and World Bank 2014b).

The main difference between PPP and other procurement mechanisms lies in the degree to which risk is transferred to the private party and in ownership of assets. In a traditional procurement process, government outsources projects to the private sector, government pays for the capital and operating costs, carries the risks of the costs overruns and late delivery and typically owns the assets (Ruiters & Matji, 2016). Privatisation means that state assets are sold, state liabilities are sold and government has only a regulatory function (Ruiters & Matji, 2016). PPPs are an alternative mechanism to traditional procurement and offers advantages in terms of benefiting from efficient delivery, financing, innovation, limits to public borrowing and technical expertise (Savas, 2000; EIB,2004; EIB,2019; Grimsey & Lewis, 2005; Kappeler & Nemoz, 2010 as cited in Batra, 2021) are used as an alternative mechanism to traditional procurement in order to achieve efficient delivery, innovation, limits to public borrowing, financing and technical expertise (Savas, 2000; EIB, 2004; EIB, 2019; Grimsey & Lewis, 2005; Kappeler & Nemoz, 2010 as cited in Batra, 2021).

It is critical to understand that “financing” in PPP refers to money required at a project outset to commence implementation while “funding” generally refers to money required to meet repayment objectives and to pay financiers (World Bank, 2014b). A project company or special-purpose vehicle (SPV) is created for the purpose of PPP project implementation (World Bank, 2014b). The SPV has no financial history or assets to pledge and is the party at the centre of contractual and financial relationships in a PPP project. In the event of disputes and defaults, other than financial defaults, the SPV alone is responsible (Khmel & Zhao, 2016).

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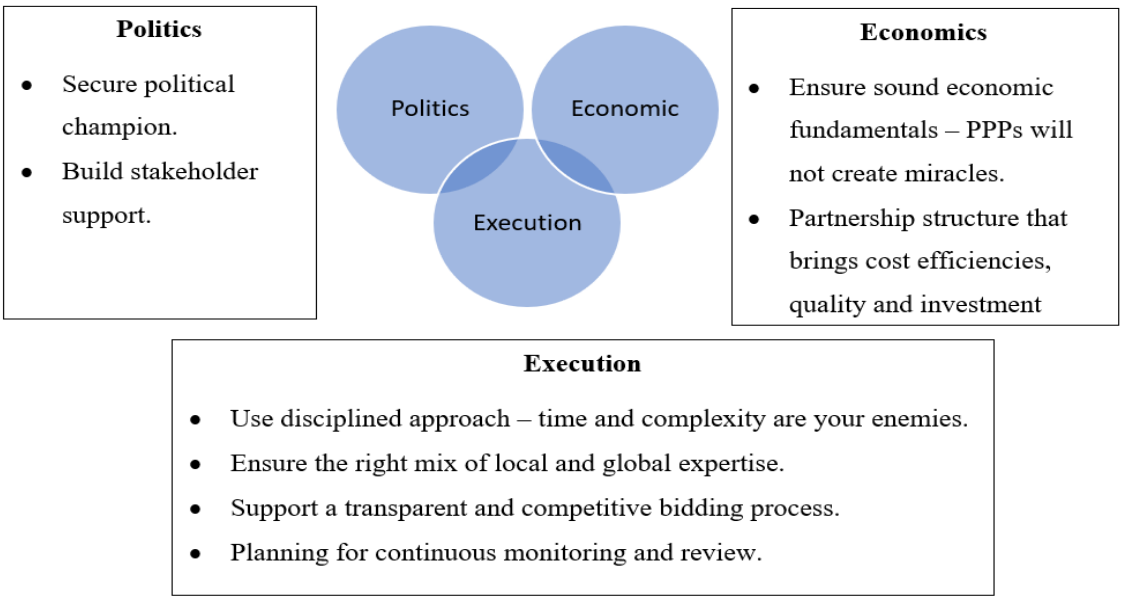
2.2. THE PPP FRAMEWORK IN SOUTH AFRICA

In 2000, a PPP Unit was established within National Treasury and it is the lead government agency for PPPs in South Africa. The unit is responsible for policy, project planning, feasibility and governance in respect of PPPs. Furthermore, the unit ensures centralised knowledge and expertise, feasibility, value for money, affordability and appropriate risk transfer (Burger, 2009). The Government Technical Advisory Centre (GTAC) is an agency of South Africa's National Treasury that offers advisory, technical support, planning, contracting and execution of PPPs. The following frameworks exists to support PPPs:

- The Public Finance Management Act 1 of 1999
- Treasury Regulation 16 (2004)
- The Municipal Finance Management Act 56 of 2003
- The Municipal Systems Act 32 of 2003
- The Public–Private Partnership Manual and the Standardised Public–Private Partnership Provisions
- The Preferential Procurement Policy Framework Act 5 of 2000 (PPPFA)

2.3. INTERNATIONAL THEORY OF PPP

The World Bank established the framework for building successful PPPs, and this framework consists of three pillars (World Bank, 2014a) – politics, economics and execution. Getting these three pillars right is a recipe for successful PPP project implementation. They can be illustrated as follows:



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Source: World Bank (2014) – The framework for building successful PPPs

Chan et al. (2010) state that with the rapid growth of the Chinese economy and the demand for infrastructure, government sources of funds will not be able to cater for required infrastructure and PPPs are a favoured option to support the infrastructure delivery.The main drivers of private sector participation are increased constraints on government budgets, the rising cost of refurbishments, maintenance and operating of public assets, good management of risk, and innovations in the private sector (Roehrich et al., 2014). PPPs have been on the rise in China due to the need to bridge the infrastructure gap and alleviaterising local debt. In China, PPPs have failed to attract enough private investment and at time become a form of hidden debt with even higher costs (Tan and Zhao, 2019). The Chinese government finances most PPPs, and given the burden, measuresto attract private sector investment are being explored (Tan and Zhao, 2019).

The key challenges facing the infrastructure industry is the ability to raise capital upfront, which is a core requirement for commencing an infrastructure project (Urban Land Institute and Ernst & Young, 2013). The financing of PPPs is a major source of concern for India given that international funding is shrinking. In India, financing problems are a major barrier to entryfor private sector participation, developers experienced unwarranted time and cost overruns stemming from delays in land acquisition and grant of approvals (Sinha & Jha, 2021).

Financing methods for large investments areneeded, guarantees and security mechanisms are crucial for incentivising private sector to invest and the private sector must be controlled and regulated to avoid unwarranted excess profit gains (Batra, 2021). In Spain, there are a limited numberof banks willing to be lenders but are not willing to take too much risk, with large-scale projectson standby or being implemented slowly (Urban Land Institute and Ernst & Young, 2013). Government spending on infrastructure has been cut and is slowing down, with current worksbeing delayed due to lack of funding.

In Ghana, PPPs have been used as a tool to accelerate infrastructuredevelopment in sectors such as transport, construction, education, energy and health Awuku et al., 2022).. However,there have been challenges due to a lack of accountability and transparency, tensions due to land litigations, politicisation of PPPs, and poor bargaining abilities due to low knowledge of PPPs agreements (Awuku et al., 2022). Government commitment to infrastructure development requires that they conclude mutually beneficial contracts for all parties.

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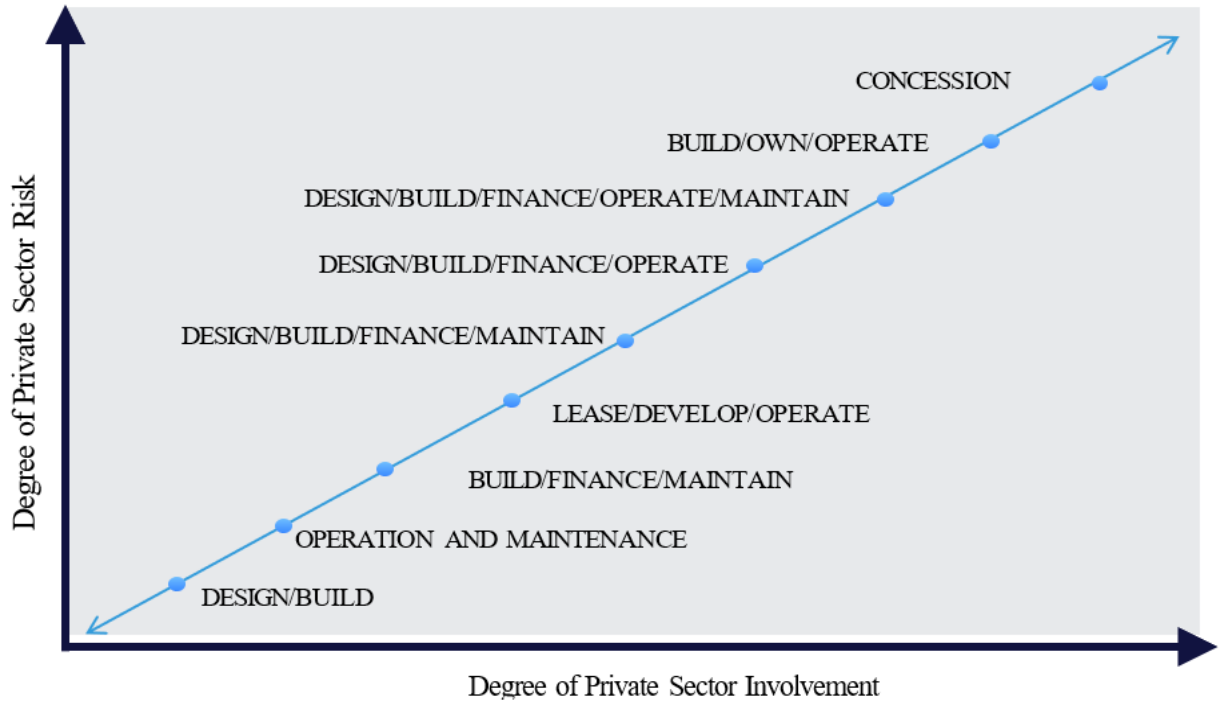
Urban Land Institute and Ernst & Young (2013) illustrate how PPP models differ depending on the degree of private sector involvement and risk transfer:



Source: Urban Land Institute and Ernst & Young, 2013) – *PPP varies according to degree of Private Sector Involvement and Risk Transfer*

In addition to the assessment of PPP project bankability, it is crucial to consider assessment forvalue for money and appropriate risk allocation as projects can be bankable but might not deliver value for money (Global Infrastructure Hub, 2019a). Jomo et al. (2016) state that PPPsfail to deliver value for money and do not show broader welfare benefits for society such as positive impact on poverty eradication and sustainable development.

In the United Kingdom, direct infrastructure investment from private sector decreased considerably and has a negative impact on the growth of the industry. Although there is lot ofcapital, investors insist on certainty and assurance that PPP projects will proceed and that riskis manageable (Urban Land Institute and Ernst & Young, 2013). The principle of risk allocation in a PPP transaction is that risks should be allocated to the party best able or most incentivised to bear those risks andwill involve identifying which party will best manage the likelihood of such risks as well as their impact (Global Infrastructure Hub, 2019a). Given a study on a toll way project in Indonesia, Abednego & Ogunlana (2006) indicate that it is crucial to achieve proper risk allocation and risk acknowledgement.

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The Global Infrastructure Hub is a G20 initiative focused on infrastructure development and established a PPP Risk Tool (the 2019 edition) to assist with risk assessment and allocation metrics between public and private partners for PPP transactions addressing the risks challenges specific to each sector (e.g. transport, energy, telecommunications and waterprojects) (Global Infrastructure Hub, 2019a). Furthermore, understanding risk allocation arrangements is a pre-condition for finalising successful PPP agreements as the application ofrisk allocation principles will determine whether PPP projects will satisfy government needs and the needs of the private sector (Global Infrastructure Hub, 2019a). Risk allocations also provide clarity on whether the project is affordable, achieves value for money and will be financially viable thereby serving as motivation for investors willing to commit financial resources (Global Infrastructure Hub, 2019a). Though a favoured model, PPPs are not meant to transfer all risks to the private partner as there will always be inherent risks for the government (Global Infrastructure Hub, 2019a).

Government plays a crucial role in PPPs as securing funding without government guarantees is difficult. Governments in Europe have promoted private sector participation in developing, financing and providing public health infrastructure and service delivery through PPPs (Urban Land Institute and Ernst& Young, 2013). In countries where stakeholders have good relations with their governments, they seem to get support and have a better view of PPP pipelines and prospects, enabling them to have critical information required to make long-term plans and investment decisions (Urban Land Institute and Ernst & Young, 2013).

According to Global Infrastructure Hub (2019), the increased interest in PPP models and contracts means government needs to take a long-term approach to identify, allocate and manage risks in every PPP transaction.

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2.4. PPP MANAGEMENT THEORY

Furthermore, Arimoro (2018) acknowledges that most governments are adopting PPPs given the huge infrastructure gaps and budget deficits and need to tap into private sector capital and management expertise. Ruiters & Matji (2016) recognise that PPP are required to close the infrastructure delivery gaps in order to extend services to communities. With a high demand for provision of water services infrastructure, the implementation of PPP models will help leverage private sector investment in economic infrastructure assets, thus allowing the government to recycle its capital for socio-economic needs (Ruiters and Matji, 2016).

Arimoro (2018) investigated the PPP legal and regulatory framework of PPPs in South Africa and concluded that there is a need for PPP processes to be simplified and more transparent in order if PPP is to attract foreign and domestic investors.The infrastructure sector is moving towards performance contracting, where payment is linked to results and milestones are achieved against fixed deadlines (Urban Land Institute and Ernst & Young, 2013).

Buso et al. (2021) suggest that there is a need for optimal design in PPP and for understanding of private sector negotiating power as the absence of these two things is a source of inefficiency that may lead to underinvestment in PPPs and limited use of incentive contracts by government (Buso et al., 2021). In water infrastructure development, what was concerning was a lack of life cycle support, the possibility of political interference and low financial return expectations. Given the public funding gaps, innovative deal structures and government support will become even more important (Buso et al., 2021).

Ittmann (2016) explored PPPs as a mechanism for freight transport infrastructure delivery and concluded that PPPs are complex and challenging and therefore it is important for parties to build relationships and remain committed to the project. Government involvement is critical and financial viability, value for money and financial benefits are non-negotiable for the private sector (Ittmann, 2016). Bwanali and Rwelamila (2017) argues that PPPs should be designed with a long -term approach as PPPs are by design a long term relationship between public sector and private sector and suggest that a detailed feasibility study to assess the bankability for which impact the potential tariffs or user charges to be levied. Nel (2014) reviewed South African PPPs case studies including the Gautrain Rapid Rail link,South African National Parks, Head office accomodation (Department of Education,Department of Rural Development and Department Land Refform),the author found that

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there is lack of government support for private providers, lack of oversight, Lack of transparency in PPPs and underdeveloped market for PPPs.Furthermore, Nel (2014) concluded that there is lack of buy-in from constituents, lack of community awareness & involvement and lack of political commitment

Ittmann (2016) emphasises the need for detailed clarity on risk handling, risk sharing, magnitude of risks, financial and logistics analysis between parties as it is through such detailed analysis that value for money for private sector investors will be determined. PPPs fail to find the right level of private sector participation and fall short of expectations because both the public and the private sector think of risk differently (Beckers & Stegemann, 2021). The public sector thinks of risk with a focus on compliance and transparent procurement laws while private-sector risk-management capabilities look at the entire spectrum of relevant risks with a particular focus on potential commercial and financial effects (Beckers & Stegemann, 2021).The public sector should stand the risk that the private sector cannot control, or cannot control better than public sector and the same should apply for private sector. In the event that the parties possess comparable risk-aversion , the risk should be allocated to the party who has more control over the risk (Iossa et al.,2007:4) as cited in Nel (2014). From case studies reviewed, Farlam (2005) suggests that there are few lessons learned including i.e. 1) Politics matters 2) Pricing is fundamental 3) Corruption destroys partnerships 4) Risk Transfer / Risk Management 5) Providing a range of service options 5) Local economic empowerment 6) Regulating the Private sector, Enforcing contracts 7) Building Capacity of the public and private sectors. Importantly, Farlam (2005) agrees that risk transfer and management is key and correct pricing is fundamental.

Dlamini and Botes (2022) suggest poor allocation of risk one of the key pillars of successful PPPs and that the timing of each risk is crucial as well as ensuring that the partner that is allocated the specific risk is the best party to manage the risk. Furthermore, failure to adequately cost risk can be expensive, may also leading to halting project implementation, and potential for conflicts thus risk transfer, costing and project finance exercise must be linked (Dlamini & Botes, 2022).

If PPPs are to play a critical role in infrastructure development in South Africa, accountability challenges need to be addressed (Fombad, 2019). Monitoring measures, clarity on accountability relations, transparency, ethical standards, risk transfer and institutional reform will be necessary to enhance accountability (Fombad, 2019). Accountability would enhance PPP effectiveness, prevent

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corruption, control the abuse, control misuse of public authority and ensure fair and equal treatment in PPPs (Fombad, 2019).

Fombad (2019) suggests that PPP legislation and policies do not protect the legitimate interests of stakeholders in fostering partnership and that communities are not consulted for inputs into PPPs. The PPP framework in South Africa does provide for inclusion given the Broad-based Black Economic Empowerment (BBBEE) requirements, though at times the PPP process is met by fronting challenges (Fombad, 2019). It is critical to involve all stakeholders to ensure successful PPPs. Ashade and Mutereko (2021) found that for PPP infrastructure projects, some communities were involved much earlier while others not involved or consulted at later stages of the PPPs. Evidence from the study demonstrated that communities expressed trust and confidence when they are involved from the onset than others and in cases where communities were adequately consulted and notes that need for stakeholder early involvement (Ashade & Mutereko, 2021). Impact investing is gaining substantial traction globally and in sub-Saharan Africa in that impact investors seek not only financial returns but also measurable positive social and environmental impact.

PPP enabled by tokenisation can limit barriers to small projects and includes retail investors in infrastructure while enhancing bankability (Tian et al. 2022). Tokenisation is still new and at a stage of development, and in time could play a critical role in revolutionising PPPs (Tian et al., 2022)

PPPs, if implemented correctly, can help overcome infrastructure hardship that places constraints on economic growth and has the potential to reduce income disparities. PPPs can also support the mobilisation of private sources, supporting the improvement of project selection, and on-time, on-budget implementation while ensuring adequate maintenance. It is important for both the public and the private sector to understand the different types of risks and the significance of risk factors, and how to manage and allocate risks associated with PPPs. Inappropriate risk allocation can ruin the value of money in PPPs. In summary, risk ought to be allocated to the party best able to manage the risk (at the lowest cost).

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2.5. TYPOLOGY OF PPP

There are various types of PPPs models used in South Africa and they differ in their contractual agreements and risks allocations. National Treasury (2017a) lists the following PPP categories:

- Design, finance, build, operate and transfer (DFBOT) projects
- Design, finance and operate (DFO) projects
- Design, build, operate and transfer (DBOT) projects
- Equity partnerships projects
- Facilities management projects

2.6. PPP PIPELINE IN SOUTH AFRICA

Table 1 below outlines various PPPs that are under review (in terms of feasibility, procurement, financial closure etc.) and will undergo approvals by National Treasury before implementation.

Table 1: South Africa PPP Unit Pipeline

Category	**Project Name**
Transportation	Extension of the Gautrain Rapid Rail
	Gautrain acquisition of additional rolling stock
	Tshwane fleet management
	De Aar Logistics Hub
	Gautrain acquisition of additional rolling stock
	Western Cape Regeneration Programme
	Rehabilitation/upgrading of six border posts
	Procurement of emergency towing vehicles
Solid Waste	Solid waste diversion and beneficiation opportunities
	KwaDukuza Waste Services
Health	Tri-generation Chris Hani Baragwanath Hospital

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	Northern Cape renal dialysis
Energy	Rooftop solar project
Education	Ikusasa
Office Accommodation	National Metrology Institute of South Africa Laboratories and Equipment
	Department of Rural Development Head Office Accommodation Building
	Kopanong Precinct
	KwaZulu-Natal Government Precinct
	Bisho Office Precinct
	Innovation Hub
	New Municipal Office Project

Source: National Treasury

Classification: Public

2.7. BENEFITS OF PPPs

Infrastructure is critical for economic development, reducing poverty, inequality, creating jobs, and ensuring environmental sustainability(World Bank, 2014b). Infrastructure generates high social returns and is welfare enhancing (World Bank, 2014b). Infrastructure investment is generally part of a social compact between government and citizens (World Bank, 2014b).

Countries with previous experiences in PPPs have found that PPPs manage construction projects better than does traditional public procurement, and projects are often completed on time and on budget (World Bank, 2014b). This is as a result of the incentives created by the PPP structure, which provide the private party more control over project design and implementation while simultaneously preventing the rewards of cost overruns (World Bank, 2014b).

PPPs can combine the strength of private sector capabilities such as innovation, technical knowledge, managerial efficiency and an entrepreneurial spirit with the usual roles of the public sector such as social responsibility, social justice, public accountability, and local knowledge to create an enabling environment for delivering high-quality infrastructure and services (World Bank, 2014b).

PPPs also support government in the implementation of infrastructure projects that would otherwise have been cancelled given fiscal constraints. Through PPPs, government can leverage private sector capabilities to raise capital. Gibe PPPs partnerships, public and private sectors actors may realise benefits such as the creation of jobs, educational development, incentives for innovation, competition and infrastructure development (Roehrich et al., 2014). If these things can be done, the national development plans for 2030 will be on track.

2.8. PPP CHALLENGES

PPPs are viewed as a powerful economic mechanism and have been successful to a great extent, but implementation remains challenging in many countries. Governments adopt PPPs for infrastructure development but often face fiscal constraints or high-gearing ratios that limit the number of projects that they can then pursue (World Bank, 2014b). PPPs are complex, governed by agreements, involve different players with different interests throughout the project cycle and can result in agency problems (World Bank, 2014b). PPPs involve large sums of money and projects of long duration and are therefore prone to bribery and corruption (World Bank, 2014b). Furthermore, the adoption of PPPs

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has also been constrained by the lack of an enabling environment in which deals can be properly structured and the work and remuneration of private parties can be monitored.

PPPs often fail the bankability test and are not able to attract private parties given the risk allocations. PPPs may be bankable but still might not deliver value for money nor be financially viable for investors due to the risk (Global Infrastructure Hub, 2019a). Risk allocation, risk management and magnitude of risk are not adequately assessed yet are key for private sector participation. PPPs tend to be more expensive than traditional procurement and may fail to deliver in terms of expected gains, coverage, efficiency and development impact (Jomo et al., 2016). For these reasons, PPPs are also proving sometimes not to generate value for money for the public (Ittmann, 2016).

In other cases, municipal PPPs are not supported by government guarantees and they struggle to articulate how tariffs charged will ensure continued operations and maintenance of infrastructure (Ruiters & Matji, 2016). In South Africa, inclusion is key, and therefore PPP requirements must meet Broad-based Black Economic Empowerment standards and key takeholders such as communities should be consulted (Arimoro,2018). Furthermore, the lack of trained personnel to administer PPPs in South Africa remains a challenge given the complexities of PPPs (Arimoro, 2018).

The PPP pipeline is also limited, with few PPPs closed annually per sector and the process from inception to close can take 24 to 26 months (National Treasury, 2017a). Lack of transparency on PPP information (e.g. PPP agreements) to the public creates opportunities for corruption, unethical behavior and no regard for rule of law (Fombad, 2019).Government also need to guard against contractors that may choose to walk away rather than spend on costly maintenance by having mechanisms and processes to deal with early termination that compromises the intended delivery of services to the public (World Bank, 2014b).

Financing of PPPs remains the biggest challenge globally creating the urgency to develop innovative financing solutions and ways to encourage private sector participation in PPPs for infrastructure projects.

Classification: Public

2.9. EMPIRICAL LITERATURE

Parats et al. (2018) suggest that the creation of a database of accurate information on PPPs for good management of PPP risk and related liabilities is crucial. The national and international databases aim to increase transparency and promote private investment in infrastructure financing. A comparative study covering seven countries (Columbia, Mexico, Peru, Uruguay, Australia, the UK and South Africa) concluded that different countries vary in the detail of information they share with regard to basic project information, types of Private Participation in Infrastructure (PPI), project status, contract details, investment details, financing structure, selection process and bid details, government support, bilateral and multilateral support and contracts for PPP projects (Parats et al., 2018).

South Africa was found to have no information about investment details, bid details, bidder selection processes or bilateral and multilateral support, and limited basic project information and contract details. However, comprehensive information is provided regarding types of PPI, project status, level of government support and contracts for PPP projects.

Sub-Saharan Africa (SSA) attracted US$5.2 billion in investments across 26 projects in 2021 and this stayed around the same level on average for the past five years but there was a decrease of 12% in investment levels from 2020 to 2021, while the East Asia & Pacific (EAP) and Europe & Central Asia (ECA) regions saw an increase in commitments for infrastructure in 2021 (World Bank, 2021).

2.10. PPP BEST PRACTICE

Firstly, a country has to have a PPP framework and a dedicated national agency that is responsible for managing PPP planning, technical aspects and contractual agreements and execution and South Africa has both (Parats et al., 2018). Different countries employ different PPP models for different infrastructure projects. Different PPP models also attract different risk allocations and contractual agreements. What follows is a description of some cases of successful PPPs and lessons learned:

- Chad suffered from poor maintenance of its road network because of poor design of maintenance contracts with private contractors, as well as a lack of domestic funding (World Bank, 2014b). In 2001, Chad awarded a performance-based maintenance PPP contract for 441 kilometres of unpaved roads (7% percent of the country's road network), which paid a lump sum fee per kilometre of road maintained to pre-defined standards (World Bank, 2014b). The roads have

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since met and even exceeded performance standards and the agency problem has also been resolved (World Bank, 2014b).

- Argentina entered into a performance-linked contract aimed at improving the reliability and maintenance of its road network according to agreed standards. The agreement has benefited government in the form of a 30% saving on capital expenditures for rehabilitation due to win-win contract terms (World Bank, 2014b).
- South Africa has implemented PPPs successfully and SANRAL has been at the forefront of efforts to close PPPs that work still today. The N4 toll road from Witbank to Maputo is a partnership between the governments of Mozambique and South Africa and a private company called Trans African concessions. The contract duration is 30 years with a value estimated at 466 million USD. Contractually, ownership of infrastructure will revert to the two governments after the 30 years. A combination of debt and equity financing was used and both governments agreed to guarantee the debt in case the private partner was unable to service the loan. Communities were also involved in priority subcontracting so labour was sourced from both Mozambique and South Africa. Other successful PPPs include the N3 toll road from Johannesburg to Durban, the development of the Cradle of Humankind in Johannesburg, the Chapmans Peak Drive toll road and the State Vaccine Institute.

The World Bank advocates that successful PPPs should always pass the test of bankability, value for money, appropriate risk allocations and good management. The private sector is also interested in financial and commercial risks for investment decisions and therefore needs to be considered when the PPP model is chosen as an approach for infrastructure development.

Furthermore, Chan et al. (2010) emphasise that for PPPs to be successful, governments need to adopt these critical success factors, i.e. equitable allocation of risks, strong private sector involvement, judicious government control, transparent and efficient procurement processes, economic viability of projects and a strong legal framework.

PPPs are an evolving concept, and South Africa is one of the leading countries in terms of implementing a PPP framework, PPP life cycle and good contract management with continuous improvements being made (Burger, 2009). However, countries in the EAP, ECA and LAC regions seem to face challenges such as a lack of financing for projects, a lack of private sector participation, risk allocation challenges and decreasing private investment in infrastructure.

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2.11. SUMMARY REMARKS

PPPs are not new to South Africa, and there have been successful PPPs that we can draw lessons from. The PPP Framework and PPP legislation are in place, and the PPP Unit in the National Treasury supports the management of PPPs though the process is long and complex from inception to procurement. It is evident that PPPs are an integral part of strategy for infrastructure development. However, funding mechanisms for infrastructure projects remain constrained, raising the need for accelerated private sector participation.

For PPPs to be successful, it is important that South Africa adopt critical success factors and ensure value for money, adequate risk allocation, transparency, good governance, mutually beneficial contracts, and service delivery that meets public expectation, among other things. On the hand, there are opportunities for the private sector and the public sector to collaborate, build relationships, commit and deliver much-needed infrastructure in South Africa. It is important to note that bankability is not the only key determinant of decisions to embark on a PPP project. One also has to consider the assessment of financial viability, value for money and adequate risk allocation in order to encourage private sector investment. PPP projects require all key stakeholders to be involved and in many cases the relevant communities are not consulted during the process and this leads to the failure of PPPs.

The need for private sector participation in infrastructure is gaining momentum given that most governments around the world are experiencing budget constraints.

Classification: Public

CHAPTER 3: EMPIRICAL MODEL AND RESEARCH METHODOLOGY

3.1. INTRODUCTION

The purpose of the study is to explore the determinants of private sector participation in PPPs for infrastructure development. This chapter includes details of research strategy and design, population, sample, instrumentation, procedures for data collection, procedures for data analysis and procedures for conducting validity and reliability tests.

3.2. RESEARCH STUDY

According to Creswell (2014), different types of research call for different approaches. Creswell (2014) suggests that if a problem calls for the identification of factors that influence an outcome, the utility of an intervention and/or the relevant parties' understanding of the best predictors of outcome, then the quantitative approach is the best. The quantitative approach is also a traditional mode of research with established systematic procedures, and was therefore selected for purposes of this study (Creswell, 2014).

The quantitative approach will be used for the purposes with the aim of testing a theory using statistical procedures by stating a narrow hypothesis and through the collection of data to support or refute a hypothesis (Creswell, 2014). The benefits include reliability, the short time required to administer surveys and easy organisation of numerical data for participants. It is also easy to establish the extent to which the respondents agree or disagree. However, this approach falls short in terms of capturing human perceptions, beliefs and experiences.The qualitative approach is suitable, provided the concept is explored and understood and open-ended questions are utilised and if the researcher does not know all the variables to examine. Qualitative approaches such as case studies were also feasible because researchers are able to evaluate a programme such as PPP for which a researcher can gain in-depth knowledge (Creswell, 2014). However, the survey approach was selected because it makes to possible to capture the opinions of entities that have participated in PPP projects as well as the opinions and behaviours of industry and sector players that have the potential to participate in PPPs (Stake, 1995; Yin, 2009, 2012 as cited in Creswell, 2014). The qualitative methodology is time-consuming during the interview process, involves an intensive categorisation process and it may be difficult for the researcher to objectively verify results.

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3.3. RESEARCH DESIGN

A survey design provides a quantitative or numerical description of trends, attitudes, characteristics, behaviour and opinions within the population through a study done on a sample of that population (Creswell, 2014). Surveys will include the use of questionnaires or structured interviews for collecting data and can be used to generalise and draw inferences about the population (Fowler, 2008 as cited in Creswell, 2014).

Given that there is a large number of JSE-listed entities targeted as participants, surveys provide a high representation of the entire population (Fowler, 2009 as cited in Creswell, 2014). Surveys are also cost-effective though reliability will be based on the structure and accuracy of answers provided by the participants.

Surveys are structured and organised and can be administered easily and quickly. Once responses are received, data can be organised for analysis within a short space of time (Creswell, 2014). The numerical data collected during a survey allows for comparison and determination of the extent of agreement and disagreement between participants.

3.4. POPULATION OF STUDY

The target population for the research includes companies operating in South Africa in selected industries and listed on the Johannesburg Stock Exchange (JSE). The JSE uses the Industry Classification Benchmark (ICB) system, which is a 4-tier structure consisting of 11 industries (level 1), 20 super-sectors (level 2), 45 sectors (level 3) and 173 subsectors (level 4) (FTSE Group, 2022).

For this study, entities were selected from five of the 11 industries, and specifically **Healthcare, Financials, Industrials, Basic Materials and Energy**. These entities include organisations that have participated in PPPs in South Africa as well as those that have not yet participated. A list of all JSE-listed entities together with their contact details and their corresponding ICB classifications per industry and respective sector is publicly available. Table 2 shows the 11 industry classifications of JSE-listed companies.

Table 2: Industry classifications of JSE-listed companies

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Index Code	Index Name/Industry	ICB Industry Code
JI0010	Technology	10
JI0015	Telecommunications	15
JI0020	**Health Care**	**20**
JI0030	**Financials**	**30**
JI0035	Real Estate	35
JI0040	Consumer Discretionary	40
JI0045	Consumer Staples	45
JI0050	**Industrials**	**50**
JI0055	**Basic Materials**	**55**
JI0060	**Energy**	**60**
JI0065	Utilities	65

Source: Johannesburg Stock Exchange (2022) – 1st level Industry Classification Benchmark

Classification: Public

3.5. SAMPLE

The sample consists of all 218 companies from five of the 11 industries referred to above. Representation from the five industries will be as follows: **Financials** 79 participants, **Healthcare** 11 participants, **Industrials** 64 participants, **Energy** 13 participants and **Basic Materials** 51 participants. The study allow for one respondent per company to complete the survey. All respondents will be adults in senior leadership positions of the company. Furthermore, Appendix 1 lists the targeted industries and their corresponding 3rd level sector ICB classification (FTSE Group, 2022).

Priority infrastructure development in South Africa will focus on providing solutions in healthcare, energy, transportation, education and social infrastructure (The South African Government, 2022). The current PPP pipeline lists projects in transportation, healthcare, energy, utilities (solid waste) and office accommodation (National Treasury, 2017a).

A systematic or probalistic sample was used, and a representative sample from a population allowed for generalisation of the population (Creswell, 2014). Stratification was also used to ensure that the sample reflects the true proportion of the population of participants (senior leadership, executives and directors) (Creswell, 2014).

3.6. RESEARCH INSTRUMENT

The survey questionnaire will be prepared by the author and reviewed by the author's supervisor. The survey was presented online survey structured questions in six themes. The questionnaire will be shared with each organisation from the selected industry and sector. The survey is envisaged to be completed by executives, directors and senior leaders of the selected JSE-listed organisations. On the closing date, completed survey questionnaire data was downloaded and stored safely for further analysis.

A pilot survey will be sent to a few participants by email and once feedback has been received, changes and enhancements will be made before the final survey is distributed.

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3.7. PROCEDURE FOR DATA COLLECTION

A survey questionnaire was prepared specifically for this purpose and the survey was open for six weeks. Survey Monkey was used because it provides custom survey templates, makes it easy to monitor responses and to create custom surveys, post the surveys, and email them to participants for completion (Creswell, 2014). Survey Monkey is also cost-effective, saves time and is convenient for participants and researchers.

The contact details of the participants (from JSE-listed entities) are publicly available at the JSE client portal, though for correct representation of participants from the selected organisations and for purposes of generalisation, stratification may be necessary.

3.8. DATA ANALYSIS METHOD

For data analysis in respect of both descriptive and inferential statistics, the IBM SPSS statistics tool was used. The tool supports the analytical process from data preparation and management to analysis and reporting (IBM, 2020). It was also be possible to establish whether there is missing data and check for data validity and reliability (internal inconsistencies).

The survey provides for simplicity of scales (likert scales) as respondents will select answers that best fit their views. The answers given will have numerical value of 1 (Strongly Agree) – 5 (Strongly Disagree), and based on the scores, the results shows what the respondents consider to be factors that can motivate and incentivise private sector participation to accelerate infrastructure development in South Africa. The results also highlight the barriers and opportunities for the private sector and the public sector to collaborate in accelerating infrastructure development in the country.

For purposes of establishing reliability, Crobach test was performed (IBM, 2021. Furthermore, statistical test for comparisons, KMO, ANOVA, p value (significance), Effect (Cohen's D) and Correlation co-efficient was also performed. Data analysis results as per the SPSS plays a critical role when the findings and conclusions of the research are reported.

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3.9. VALIDITY AND RELIABILITY

Establishing score validity in a survey helps to identify whether the instrument used is good for the survey research. Continuous scales (e.g. from 1- strongly agree to 5- strongly disagree) and categorical scales (e.g. yes/no) were used during the survey (Creswell, 2014). The survey was shared with participants online via email, and it was administered in a structured manner to ensure a high response rate. An email for the notice that actual survey is open was shared and regular monitoring through survey monkey application was undertaken. These actions took place within a period of six weeks, which ensured that data collection could be done in time for an analysis to be prepared (Dillman 2007 as cited in Creswell, 2014).

3.10. ETHICAL CONSIDERATIONS

The author declares that they have no competing financial interests or personal relationships that could impact the findings and conclusions of this research.

3.11. METHODOLOGICAL LIMITATIONS OF THE STUDY

The quantitative approach is limited in that the research will not be able to capture human element such as characteristics, beliefs and perceptions of the participants. At times, context is also crucial for an understanding of the findings and this could be missing due to the use of the chosen method. A survey questionnaire as a quantitative instrument cannot capture the context or behavioural aspects of participants.

3.12. SUMMARY REMARKS

The quantitative approach will be used for the study as it seeks to identify the factors that will motivate private sector investment in infrastructure development. A survey questionnaire will be used for data collection. Population and sample will be representative so that it will be possible to generalise. The SPSS tool was used for data preparation, data management, data analysis and reporting. Matters of validity and reliability were resolved through statistical tests and the SPSS was used to ensure the findings, the conclusions and the study as a whole accurately reflect the responses from the participants without any bias

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CHAPTER 4: QUANTITATIVE RESULTS AND FINDINGS

4.1. INTRODUCTION

This chapter summarises the research results, findings, analysis and interpretation of the study based on responses from the survey. The sample characteristics of the results of the research are also discussed in this chapter.

The frequencies and percentages of participants' responses are illustrated in Tables 7 to 12 and are structured as follows:

1 = Strongly disagree

2 = Disagree

3 = Neither agree nor disagree

4 = Agree

5 = Strongly agree **(see Appendix 6)**

The results have been rounded up to the nearest decimal (so the percentages may not exactly add up to 100%), and the mean and the standard deviation are also included in Tables 7 to12.

The results are presented in six themes:

1. *Access to information and participation in PPPs*
2. *PPP Framework, Regulations and Provisions*
3. *Transaction costs*
4. *Incentive mechanisms*
5. *PPP impact on company growth and business model*
6. *PPP as an effective tool to stimulate infrastructure and economic growth*.

The findings were used to formulate recommendations for exploring the determinants of private sector participation in Public–Private Partnerships (PPP) projects for infrastructure development in South Africa.

4.2. SAMPLE CHARACTERISTICS OF PPP SURVEY RESPONDENTS

The results of the survey indicated that the final sample size was 37

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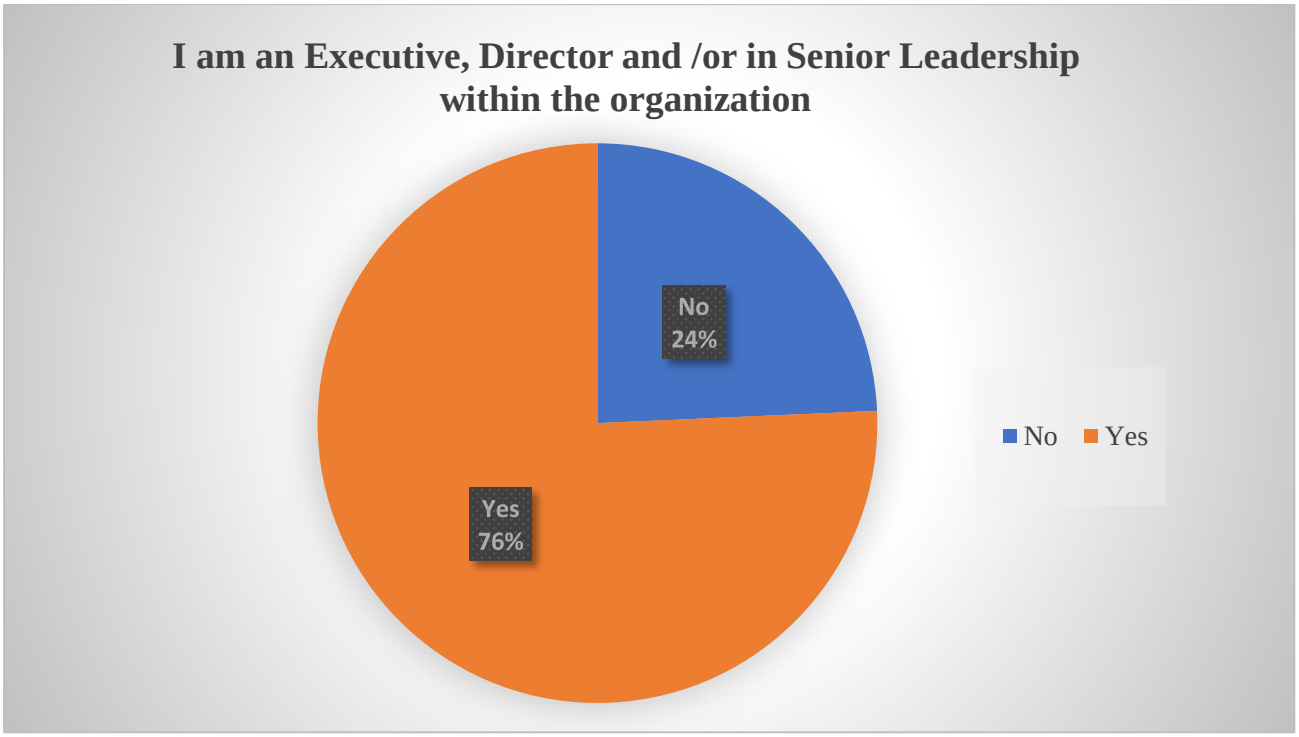
Graph 1: Executive, Director and/or Senior leadership participation in survey



Graph 1 indicates that 76% (28) of the respondents were in executive, director and/or senior leadership roles within the relevant organisations, while 24% (n=9) were not in executive or senior leadership positions within the organisations that participated in the survey. The majority of respondents were therefore in director, executive and/or senior roles (**see Appendix 5**).

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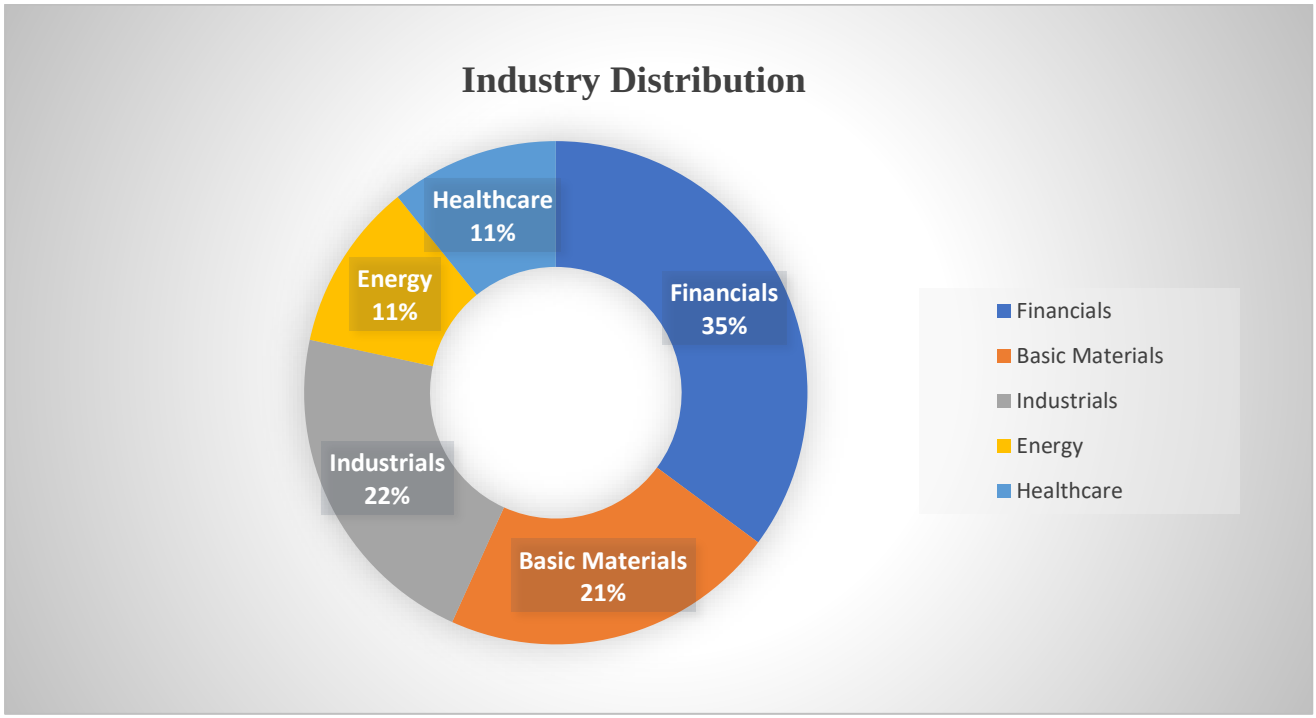
Graph 2: Organisation listing on the Johannesburg Stock Exchange (JSE)



Graph 2 indicated that 95% (n=35) of respondents confirmed that their organisations are listed on the JSE, while 5% (n=2) indicated that their organisations are not listed on the JSE. This could be due to the fact that organisations underwent delisting or were delisted from the JSE during the period of the survey. However, the majority of respondents were from companies listed on the JSE **(see appendix 5)**

Graph 3: Industry Distribution



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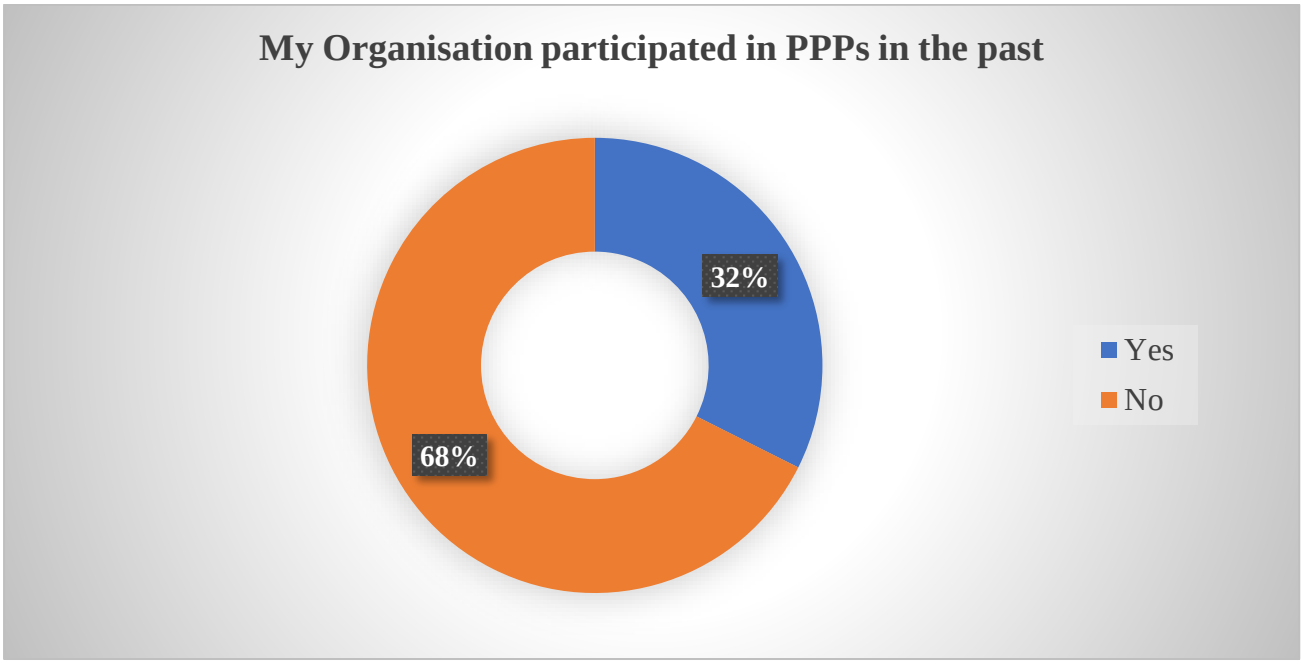
Graph 3 shows that 35% (n=13) of the respondents of the survey were in the Financials industry, 22% (n=8) of respondents were in the Industrials industry, 22% (n=8) of respondents were in Basic Materials at (n=8), while participation from the Health and Energy industries is at 11% (n=4) respectively. Therefore, the highest participation to the survey was from the Financials industry **(see appendix 5)**.

Graph 3: Organisation participation in previous PPPs



Graph 4 indicates that 68% (n=25) of the respondents confirmed that their organisation has participated in PPPs in the past, while 32% (n=12) indicated that their organisation had no previous participation in PPPs. The majority of the respondents are therefore from organisations that have participated in PPPs in the past **(see appendix 5)**.

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4.3. SUMMARY OF THE FINDINGS OF THE STUDY

The objective of the study is to investigate **"The determinants of private sector participation in Public–Private Partnerships (PPP) projects for infrastructure development in South Africa"** through the following three research questions:

I. What are the factors motivating business South Africa's participation in PPP projects?
II. What mechanisms can incentivise private sector engagement in PPPs?
III. Which factors can stimulate investment and participation from business South Africa to accelerate the priority infrastructure projects?

The first three themes we will consider, i.e. *Access to information and participation in PPPs, the PPP Framework, Regulations and provisions* and *Transaction costs*, seek to answer **research question 1** and the findings are as follows:

4.3.1. Access to information and participation in PPPs

Table 7 **(see Appendix 6)** shows frequency of respondents' responses to PPPs survey within access to information & participation in PPPs theme. Mean and standard deviation is included for each item.

The majority of respondents (53%) agree or strongly agree that PPP bidding documents for tenders are easily accessible for their organisation, with 28% of respondents disagreeing and 18% of respondents remaining neutral. The mean is 3.28 and the standard deviation is 1.11. Most of the respondents (44%) seem to believe and agree that South Africa's PPP Unit is open and transparent about PPP opportunities, although 34% disagreed and 22% remained neutral, and the mean was 3.09. Most of the respondents (40%) agree or strongly agree that the PPP Provisions and Framework are easy to understand for purposes of participation in PPPs although some participants (43.8%) challenged the view and 15.6% of respondents remained neutral, the mean is 2,94. This is in line with Arimoro (2018) as he asserted that PPPs processes should be simplified and transparent to attract investors.

The responses related to the PPP bid timeframe provide for adequate time for bidders to prepare competitive offers and show a mean of 2.88. Therefore, most bidders agreed that they had had sufficient time to prepare competitive offers. Most respondents (4.8%) slightly supported the view that the scope of PPPs in South Africa over the past 20 years has been broad enough in terms of sectors. The mean is

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2.87, and these findings can be attributed to the limited pipeline and the limited number of PPP projects published by the South African PPP Unit until 2023. Parats et.al (2018), suggest that a creation of database of accurate information on PPPs for good management is critical.

However, the majority of respondents (40.6%) agreed with the assertion that best-practice case studies are available from PPP unit for review by private sector, and the mean is 2.59. In terms of whether the value of money concept is sufficiently well articulated by the PPP Unit for PPP tenders, the mean is 2.84 and responses suggest that respondents also agree that value for money concept is sufficiently well articulated by the PPP unit. These findings resemble those of Jomo et.al (2016) where they argue that PPPs fail to deliver value for money and do not always show broader welfare benefits (no reduction in poverty and sustainable development).

4.3.2. PPP framework, regulations and provisions

Table 8 **(see Appendix 6)** shows responses to the present survey within the PPP framework, regulations and provisions theme. The mean and the standard deviation are included for each item.

The majority of the respondents (80%) affirm that the standardised PPP Provisions and Framework are crucial for efforts to encourage private sector participation in PPPs while 16% oppose the claim, 3.2% remain neutral, the mean is 3.81 and the standard deviation is 1.08. Most respondents (71%) seem to emphasise that the complexity of the PPP lifecycle is a major impediment to a broad adoption of this procurement model by entities of State and municipalities, while 13% of the respondents dispute the view and 16% are indifferent, and the mean is 3.68. This is in line with assertion from Burger (2009) as he concluded that South Africa is one of the leading countries in terms of implementing PPP framework, PPP life cycle and good contract management systems.

A large proportion (65%) of respondents also seem to suggest that the PPP framework, provisions, and regulations are NOT regularly updated to keep up with PPP participants' feedback, while 10% disagreed with the claim and 26% remained neutral. The mean was 3.65. Furthermore, most respondents (65%) insist that the lack of standardised PPP agreement templates is an impediment to broad private sector participation, while a small proportion of participants (12.9%) opposed the view and 23% remained neutral. Most of the respondents (61%) claim that the length of the PPP preparation cycle is incompatible with fast-tracking of projects, while 16% contradict this view and 23% remain neutral.

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The mean is 2.52 for items related to requirements for adequate certified PPP practitioners to support companies with bid preparations. In general, respondents believe that there are sufficient PPP practitioners to support the preparation of bid offers given PPP opportunities. Arimoro (2018) is in agreement that lack of trained personell to administer PPPs in South Africa remains a challenge given that PPPs are complex. Additionally, the mean is 2.94 in respect of the view that the PPP Framework adequately supports the transformation agenda (including the emergence of black industrialists and the promotion of targeted enterprises and Black SMMEs), and therefore the respondents believe that the current PPP framework adequately supports the transformation agenda.

4.3.3. Transaction costs

Table 9 **(see Appendix 6)** shows participants' responses to the theme of transaction costs. The mean and the standard deviation are included for each item.

The majority of respondents (72%) argue that the cost of PPP bid preparation and submission in South Africa remains high (e.g. bid/performance bonds), while 7% of participants dismissed the claim, 21% were indifferent, the mean is 3.83 and the standard deviation is 0.81. Most respondents (72%) believe that high transaction costs (for example for legal, tax, B-BBEE, engineering and environmental consultants) act as a deterrent for private sector participation, while 13% of participants disputed the claims and 13% were indifferent. The mean is 3,79.

However, most respondents (59%) agreed with the view that funding terms from both Commercial Banks and Development Finance Institutions lead to a longer payback period, while the mean is 3.52. Respondents (52%) agreed with the notion that funding terms from both Commercial Banks and Development Finance Institutions have a negative impact on project returns.

4.3.4. Incentive mechanisms

The theme of incentive mechanisms seeks to answer **research question 2** and the findings are as follows:

Table 10 **(see Appendix 6)** summarises the frequency responses for incentive mechanisms. The majority of respondents (97%) strongly believe that there is a need for attractive tax rebates and incentives to increase participation by the private sector, while no respondent (0%) disagreed and 3%

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of the respondents remained neutral. The mean is 4.41 and the standard deviation is 0.57. The majority of the respondents (93%) assert that during the PPP pre-feasibility stage, government departments should undertake more comprehensive risk assessments in partnership with the PPP Unit/GTAC, while none of the respondents (0%) challenged the view and 7% remained neutral. Furthermore, a large number of participants (90%) supported the view that government guarantees are an essential component of efforts to enhance the project bankability of PPPs in South Africa while no respondents (0%) disputed this view and 10% remained neutral.

Most respondents (90%) agree that there is a need for a more balanced approach to risk allocation between private and public parties in PPPs to speed up both commercial and financial closes of PPPs in South Africa and 83% of respondents believe that the current mechanisms for unsolicited PPP proposals by the private sector are constraining the adoption of PPPs by SA Inc. This is in line will Ittmann (2016) as he concluded that there is a need for detailed clarity on risk handling, risk sharing as it through such detail that value of money for private sector can be assessed.

4.3.5. PPP impacts on company growth and business models

The PPP impact on company growth and business models seeks to answer **research question 2** and the findings are as follows:

Table 11 **(see Appendix 6)** summarises the frequency responses for the theme of PPP impact on company growth and business models. In assessing PPP impact on company growth and business models, the majority of respondents (90%) believe that securing PPP projects can potentially help a company to create employment, while a small proportion of respondents (3%) disagreed, 7% remained neutral, the mean was 4.28 and the standard deviation was 0.96. The majority of respondents (93%) believe that a sustainable PPP pipeline has the potential to increase a company's focus on annuity-driven revenues and projects, while 3% challenged this view and another 3.4% remained neutral. The mean was 4.21. Regarding the view that a sustainable PPP pipeline has the potential to increase a company's investment in human capital and skills development, the majority of respondents (90%) seem to be in support, while 7% disagreed and 3.4% remained neutral. The mean was 4.02. Most respondents (86.2%) claim that securing PPP projects in South Africa can potentially be an avenue to expanding into other markets where the PPP model is mature and well-entrenched.

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Most respondents (76%) agree that PPP projects can potentially improve company's risk diversification, while 7% disagreed, and most respondents (76 %) slightly believe that securing PPP projects can potentially be a major contributor to a company's increased valuation.

4.3.6. PPPs as an effective tool to stimulate infrastructure and economic growth

The theme of PPPs as an effective tool to stimulate infrastructure and economic growth seeks to answer **research question 3** and the findings are as follows:

Table 12 **(see Appendix 6)** summarises the frequency responses for the theme of PPP as an effective tool to stimulate infrastructure and economic growth. This resembles findings from Zhao et al (2022) as they agree that PPPs are an effective vehicle by which to deliver critical infrastructure. The majority of participants (93%) believe that PPPs help accelerate infrastructure development that requires large-scale capital investment, and no respondents (0%) opposed this view, with 10% remaining neutral. The mean is 4.48 and the standard deviation is 0.63. On the view that PPPs have the potential to create long-term employment for citizens, the majority of respondents (93%) seem to agree with no participants (0%) disputing it. The mean here is 4.1. The majority of respondents (90%) claim that PPPs are an effective tool for delivering large-scale infrastructure projects through better capital allocation, while no participants (0%) challenged this view and 10% remained neutral.

A large proportion of respondents (97%) argue that greater PPP pipeline predictability is a powerful condition and an enabler of investment in PPPs by the private sector, while 3% of respondents disputed the argument and no respondents (0%) took a neutral stance. Most respondents (89.6%) advocate for the idea that PPPs have the ability to deliver accelerated and better-quality service delivery to communities, however, (Beckers & Stegmann) argues that PPPs fail to find the right level of private sector participation and at times fall short of to deliver on expectations, Many respondents (89.7%) also believe that PPPs are at present concentrated in limited sectors – and not enough in social infrastructure (such as education, water and health).

Some respondents (62%) seem to agree that the social and economic impacts of PPPs are more measurable than programmes conducted through traditional procurement, but 7% of respondents challenged this view. Many respondents (79%) affirm that the value-for-money principle at the core of PPPs offers better guarantees in terms of efficient capital allocation than do programmes conducted through traditional procurement, while 7% rejected the view and 31% remained neutral.

Classification: Public

4.3.7. Reliability and Validity

Table 13 **(see Appendix 6)** shows the KMO, Loadings and Cronbach alpha tests that have been performed from data gathered from the survey. These tests are intended to assess reliability and validity for internal consistency of responses provided by respondents. A high Cronbach alpha is important to ensure the reliability of data provided to examine the results and make recommendations.

Table 13 indicates that the B1 PPP Participation construct has a Cronbach alpha of 0.825 that is greater than 0.7, indicating greater reliability and validity in terms of responses. The KMO is 0.724, which is greater than 0.6 and therefore sufficient. The B2 PPP Regulations construct has a Cronbach alpha of 0.590, which is greater than 0.5 and therefore a reliable response. Of importance is that the B2 PPP Regulations construct Cronbach is 0.754, which is greater than 0.7 and, therefore, a result that can be relied upon. It is important to note that the Cronbach score was initially 0.393 and had to be reversed due to questions B11 and B12, which were asked negatively during the survey. The KMO is 0.719, which is greater than 0.6 and therefore sufficient. The B3 Transaction costs construct initially had a Cronbach alpha of 0.476, which showed that the data was unreliable and therefore, when the construction was reprocessed without question B15, the updated Cronbach new result was 0,590 and since that is greater than 0.7, it indicates that the data is reliable. KMO of 0.496 is greater than 0.6 and therefore sufficient.

C1 Incentive mechanisms construct Cronbach alpha of 0.674 which is greater than 0.6, therefore illustrates greater reliability of answers from respondents. KMO is 0.620 which is greater than 0.6 therefore sufficient, C2 Impact growth Cronbach alpha is 0.945 which is greater than 0.7, therefore illustrates greater reliability of responses. KMO is 0.880 which is greater than 0.6 therefore sufficient,

D1 PPP tool construct and Cronbach alpha is 0.825, which is greater than 0.7 and, therefore, a more reliable response. The KMO was 0.614, which is acceptable.

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4.3.8. Comparisons with characteristics of industries

Table 14 **(see Appendix 6)** This section aims to compare results from survey responses from respondents that indicated they were executives/directors and in senior leadership roles within the organisation compared to those that are not in executive and/or senior leadership within the organisations.

P values supports to establish whether hypothesis is statistically significant while effect size explains the relationship between variables or differences between groups.

B1 PPP Participation has a p value of 0.910 is less than 0.01 which is low and therefore not significant and an effect size of 0.464, which is close to 0.5, and therefore medium and illustrates that respondents who are not in executive or senior roles within the organisations tend to agree that there should be private sector participation in PPPs for infrastructure development. **B2 PPP regulations** has a p value of 0.112, which is greater than 0.01 and therefore significant and an effect size of 0.272, which is small, and illustrates that respondents who are not in executive or senior roles with the different organisations agree with PPP regulations.**B3 Transaction costs** has a p value of 0.791, which is less than 0.01 and therefore not significant, and an effect size of 0.222, which is small and illustrates that participants who are not in executive or senior roles with the different organisations agree with transaction costs.

C1 Incentive mechanisms has a p value of 0.411 which is less than 0.05 therefore not significant, and an effect size of 0.979, which is high and illustrates that respondent who are not in executive or senior roles with the different organisations strongly agree with incentive mechanisms.C2 Impact growth has a p value of 0.112, which is greater than 0.01 and therefore significant, and an effect size of 0.052, which is small and illustrates that respondents who are not in executive or senior roles with the different organisations do not believe that PPPs are used as business models and strategies to impact growth.

D1 PPP tool has a p value of 0.055, which is greater than 0.05 and therefore significant, and an effect size of 0.806, which is high and illustrates that respondents who are not in executive or senior roles with the different organisations strongly agree with PPP tools.

Table 15 **(see Appendix 6)** shows the ANOVA test, In this test the Energy industry has been combined with industrial industry , the health industry has been combined with basic materials industry. The

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rationale for combining the industry was due to having limited responses from energy and health industry

Given that only four respondents responded to the survey from the Health and Energy industries respectively and therefore a limited number of responses were available for further objective analysis, the Health industry results have been combined with those of Basic Materials and the Energy industry results have been combined with those of Industrials (**see Appendix 6, Table 16).**

In terms of B2 PPP regulations, responses within the Industrials and Basic Materials industries showed an effect size of 0.49 and responses within the Financial sector and in Basic Materials had an effect size of 0.39. Responses within the Financial and Industrials sectors showed an effect size of 0.71 in relation to B3 Transaction costs while responses within Industrials and Basic Materials showed an effect size of 0.45.

In terms of C1 Incentive mechanisms, respondents within the financial sector and basic materials effect size is 0.04, while respondents within the industrials and basic materials effect size is 0.03 and respondents within the financial sector and industrials effect size is 0.07. In terms of C2 impact growth, responses within the financial sector and industrials showed an effect size of 0.5 and responses within the Industrials and Basic Materials sectors showed an effect size of 0.47.

4.3.9. Correlation

Table 17 shows the correlation co-efficient result from the respondents' responses .The findings indicate high correlation (0.524) between C1 Incentive mechanisms and C2 Impact growth, medium correlation between C2 Impact growth and D1 PPP tool correlation is 0.487 medium correlation (0.464) between C1 Incentive mechanisms and D1 PPP tool, medium correlation (0.434) between B2 PPP Regulations and C1 Incentive mechanism, medium correlation (0.415) between C2 Impact growth and C1 Incentive mechanisms is 0.415. Furthermore, results shows that there is medium correlation (0.374) between C1 Incentive mechanisms and B3 Transaction costs. Given the results, we observe that a high degree and strong correlation between correlation (0.524) between C1 Incentive mechanisms and C2 Impact growth.

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CHAPTER 5: CONCLUSION

Infrastructure Projects are key to growing the South African economy and private sector participation is key to accelerating infrastructure development and reduce the financial burden from Government. The results of the study confirms that respondents believe South Africa has a well established PPP unit, PPP framework and provisions and good contracts management systems, therefore good access and transparent process of PPP information. Additionally, findings suggest that private sector believes PPPs are an effective tool to stimulate infrastructure and economic growth and believe that PPPs can have a positive impact on company growth.

Furthermore, the study findings suggest that lack of accelerated participation by public sector can be attributed to lack of clear risk allocation mechamisms i.e. the magnitude of risk is not clearly defined and /or risk is not adequately allocated. The risk should be allocated to the party who has more control over the risk.

Government support and commitment is crucial for PPPs as by definition PPPs are a long term relationship between state and private parties. In South Africa, PPPs are often cancelled and pipeline is not very strong. Findings of the study also indicate that government guarantees are critical and necessary for PPPs, therefore PPPs that do not include Government guarantees will generally not be attractive for private sector investment given the risk and perception for lack of government commitment.

Findings of the study also suggest that stakeholder management in PPPs is key and therefore, there is a need to engage community stakeholders are early stages of the projects. When communities are involved from inception, communities trust and have confidence in PPPs. Adequate community consultations will reduce conflicts, limit costly strikes and social unrests and limit the risk of halting project implementation. Community stakeholder management is more crucial in South Africa given the history of the country and the national agenda to alleviate poverty, reduce unemployment and inequality.The results of the study indicate that PPPs have the potential to create employment for the benefit of society. Arimoro (2018) also agreed that inclusion is key in South Africa, therefore, PPPs requirements must also meet transformation agenda goals and that there should be sufficient public and community consultations. An opportunity presents itself for South African Government to create the PPPs environment that will accelerate Private sector participation in large capital intensive infrastructure projects and achieve the desired economic growth

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CHAPTER 6: IMPLICATIONS OF THE STUDY

There have been numerous studies done around the world and in South Africa on PPPs, very few focus on private sector participation. South African budget fiscus is constrained and the infrastructure projects pipeline earmarked for PPPs within various sectors (transportation, health, water and energy) will require large capital investments.

The findings of the study have contributed to an understanding of **"The determinants of private sector participation in Public–Private Partnerships (PPP) projects for infrastructure development in South Africa"**.

The implications are as follows:

i. **For the Private Sector**

   a. The study has shown that the private sector believes PPPs are an effective tool to stimulate infrastructure & economic growth, therefore need for greater collaboration and continued active dialogue with public sector.
   b. The study has established that PPPs can have a positive impact on company growth, thus, private sector sees an opportunity for growth strategy.
   c. Findings show that risk allocation and transfer is key for private sector participation and South Africa Government must continue to engage with private sector to ensure risk is allocated to party that can bet manage the risk

ii. **For the public sector**

   a. The PPP framework, Regulations and Provisions are adequate and effective but there is a need for continuous updates and standardisation PPP agreements and templates.
   b. Findings suggest there is a need for long-term Government support and commitment in order to motivate private sector participation
   c. The PPP Unit must endeavour to make available and share best-practice case studies with private sector companies.
   d. The value for money concept must be well articulated by the PPP Unit to attract and accelerate private sector participation,

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iii. **For the greater South African society**

a. The results indicate that PPPs have the potential to create employment for the benefit of society.
b. There is a need for early community and public consultation in order to ensure PPP success.
c. The PPP framework should cover a value proposition for the greater communities and it must support the South African transformation agenda.

CHAPTER 7: LIMITATIONS OF THE STUDY

Below is a summary of limitations:

- The scope of the study was limited to JSE-listed companies within the five selected industries (Basic Chemicals, Financials, Energy, Health and Industrials) in South Africa and did not include the public sector or any non-governmental organisations.
- The study is not a random-sample but an availability study and therefore cannot generalise about companies on the JSE nor do they necessarily represent the views of most JSE-listed companies within the industries included in the study.
- The participants were limited to JSE-listed companies and there were no participants from non-listed JSE companies.

CHAPTER 8: RECOMMENDATIONS FOR FUTURE RESEARCH

The study is expected to contribute to an improved understanding of private sector participation for infrastructure development in South Africa.

As the study progressed, a few areas for potential study surfaced and are recommended to be the focus of future studies. Recommendations relating to the present study are as follows:

i. The study population and sample focused on five selected industries out of the eleven industries featuring on the JSE, namely Basic Chemicals, Financials, Industrials, Energy and Health. It is recommended that a similar study be conducted with other interactions of other companies in different industries for the purpose of examining whether the motivations for participating in PPPs for infrastructure development portrayed in this study reflect their views.

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OVERALL SUMMARY

This study postulates that the use of PPPs will be crucial in upgrading the country's overall infrastructure and that private sector can play a more significant role in government-driven infrastructure projects. The effect will be the reduction of the burden on the public purse (Mavuso et al., 2022).

PPPs are not new to South Africa, and there have been successful PPPs that we can draw lessons from. The PPP Framework and PPP legislation are in place, and the PPP Unit in the National Treasury supports the management of PPPs though the process is long and complex from inception to procurement.

The findings of the study indicate that there are specific factors that will motivate and accelerate private sector participation for infrastructure development in South Africa. The key factors for motivating private sector participation include Good PPP framework and regulations, Bankable PPP projects, Good Risk management and allocation, long-term approach to PPPs, Long term commitment and support from the South Africa Government and adequate & early consultations with key community stakeholders.

PPPs have potential to create employment for the greater society, build skills and stimulate the economy. This is crucial to support, progress and achieve the NDP 2023 plans. This study not only provides new knowledge in factors that motivate and accelerate private sector participation in PPP projects for infrastructure development, but also serves as a foundation on which future studies may be based.

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APPENDICES

APPENDIX 1: Industry Classification Benchmark (Sector – 3rd level)

Industry - (Level 1)	**Sector - (Level 3)**
Financials	Banks
	Finance and Credit Services
	Investment Banking and Brokerage Services
	Closed-end Investments
	Open-end and Miscellaneous Investment Vehicles
	Life insurance/Non-life Insurance
Health	Healthcare Providers
	Medical Equipment
	Pharmaceuticals, Biotechnology and Marijuana Producers
Energy	Oil, Gas and Coal
	Alternative Energy
Industrials	Construction and materials

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	Aerospace and Defense
	Electronic and Electrical Equipment
	General Industrials
	Industrial Engineering
	Industrial Support Services
	Industrial Transportation
Basic Materials	Industrial Materials
	Industrial Metals and Mining
	Precious Metals and Mining
	Chemicals

Source: FTSE Group (2022)

Classification: Public

APPENDIX 2: COVER LETTER

Dear Participant

My name is Mikateko Nolly Mangolele and I am a student at Wits Business School Studying a Master of Business Administration (MBA). As part of my studies, I have undertaken to investigate **"The determinants of private sector participation in Public-Private Partnerships (PPP) projects for infrastructure development in South Africa"**. The research will contribute to the ongoing debate in South Africa which seeks to increase private sector participation and partnerships with the objective of accelerating economic recovery through infrastructure development.

For the purpose of study data collection, I will require input and support from representatives of Johannesburg Stock Exchange entities. The survey should take approximately 15 minutes of your time and your contributions would be highly appreciated. The survey can be accessed using below link: SURVEY – PPP

Information supplied as part of the survey will be used for academic purposes only. Responses will completely be confidential and anonymous and completion of the survey will also serve as consent to participate. The research has also been approved by Wits Business School ethics Committee.

Thank you for taking part in this online survey and should you have any queries please feel free to contact my supervisor and me on the following contacts.

Miss Nolly Mangolele: 9903483A@students.wits.ac.za

Dr. Jacques Totowa: Jacques.Totowa@wits.ac.za

Regards

Nolly Mangolele

Email : 9903483A@students.wits.ac.za

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APPENDIX 3 : SURVEY QUESTIONNAIRE

The determinants of private sector participation in PPP projects for infrastructure development in South Africa

The following questions ask you about your views on private sector participation in PPP projects in South Africa for infrastructure development.

Select a number using the scale 1(**Strongly Disagree)** to 5**(Strongly Agree)** that most accurately represent your views on statements below:

Part A: Please provide information regarding Type of respondent

A1	I am an Executive, Director or/and in Senior Leadership within the organization	Yes / No
A2	My organisation is listed in the JSE	Yes / No
A3	My organisation participated in PPPs in the past	Yes / No
A4	My organisation belongs to this industry	Drop down list

Part B

What are the factors motivating business South Africa's participation in PPP projects?

SCALE
1=Strongly Disagree 2=Disagree 3=Neither Agree nor Disagree 4 =Agree 5=Strongly Agree

B1	**Access to information & participation in PPPs**	**1**	**2**	**3**	**4**	**5**
1	South African PPP Unit is open and transparent about available PPP opportunities	**6**				
2	PPPs bidding documents are easily accessible to our organisation					
3	PPP Provisions and Framework are easy to understand to participate in PPPs					

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4	PPP bid timeframe provides for adequate time for bidders to prepare competitive offers					
5	Best practice case studies are available from PPP unit for review by private sector					
6	The value-for-money concept is sufficiently well articulated by the PPP Unit					
7	The scope of PPPs in South Africa in the past 20 years has been broad enough in terms of sectors					

B2	**PPP Framework, Regulations & Provisions**	**1**	**2**	**3**	**4**	**5**
8	Standardised PPP Provisions/Framework are crucial to encourage private sector participation in PPPs					
9	The length of PPP preparation cycle is incompatible with fast-tracked projects					
10	The complexity of the PPP lifecycle is a major impediment to a broad adoption of this procurement model by entities of State and municipalities					
11	There are adequate certified PPP practitioners to support companies with bid preparations					
12	PPP framework, provisions, regulations are NOT regularly updated to keep with PPP Participants' feedback					
13	The current PPP Framework is adequately supportive of the Transformation Agenda (such as, the emergence of black industrialists, the promotion of Targeted Entreprises, Black SMMEs, etc.)					
14	The lack of standardised PPP agreements templates is an impediment to broad private sector participation					

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B3	Transaction costs	1	2	3	4	5
15	The cost of PPP bid preparation and submission in South Africa remains high (e.g., requirements for bid/performance bonds, etc.)					
16	High transaction costs (such as for legal, tax, B-BBEE, engineering, and environmental consultants, etc.) act as a deterrent for private sector participation					
17	Funding terms from both Commercial Banks and Development Finance Institutions lead to longer payback period					
18	Funding terms from both Commercial Banks and Development Finance Institutions have a negative impact on project returns (e.g., IRR)					

Part C:

What mechanisms can incentivize private sector engagement in PPPs?

SCALE
1=Strongly Disagree 2=Disagree 3=Neither Agree nor Disagree 4 =Agree 5=Strongly Agree

C1	Incentive mechanisms	1	2	3	4
1	During PPPs Pre-feasibility stage, Departments should undertake more comprehensive risk assessments in partnership with the PPP Unit/GTAC				
2	There is a need for a more balanced approach to risk allocation between the private and public parties in PPPs to speed up both commercial and financial closes of PPPs in SA				
3	Government Guarantees are an essential component to enhance project bankability of PPPs in SA				
4	There is a need for attractive tax rebates and incentives to increase participation of Private Sector				

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5	Current mechanisms for unsolicited PPP proposals by the Private Sector are constraining the adoption of PPPs by Business South Africa				

C2	**PPP impact on company growth & Business Model**	**1**	**2**	**3**	**4**
6	A sustainable PPP pipeline has the potential to increase your company focus on annuity-driven revenues and projects				
7	Securing PPP projects can potentially be a main contributor to your company's increased valuation				
8	A sustainable PPP pipeline has the potential to increase your company's investment in human capital / skills development				
9	Securing PPP projects can potentially lead your company to create employment				
10	Securing PPP projects can potentially improve your company's risk diversification				
11	Securing PPP projects in SA can potentially be an avenue to expanding in other markets where the PPP model is mature and well-entrenched?				

Part D:

Which factors can stimulate investment and participation from business South Africa to accelerate the priority infrastructure projects?

SCALE
1=Strongly Disagree 2=Disagree 3=Neutral 4 =Agree 5=Strongly Agree

D	**PPP as an effective tool to stimulate infrastructure & economic growth**	**1**	**2**	**3**	**4**	**5**

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1	PPPs are an effective tool to delivering large scale infrastructure projects through better capital allocation					
2	The value-for-money principle at the core of PPPs offers better guarantees of efficient capital allocation than through traditional procurement					
3	Both social and economic impacts of PPPs are more measurable than through traditional procurement					
4	PPPs have the ability to deliver accelerated and better-quality service delivery to communities					
5	PPP have the potential to create long-term employment for citizens					
6	PPPs help accelerate infrastructure development that require large-scale capital investment					
7	Greater PPP pipeline predictability is a powerful condition, and an enabler of investment by the private sector in PPPs					
8	PPPs are at present concentrated in limited sectors – and not enough in social infrastructure (such as education, water and health)					

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APPENDIX 4: List of participants – JSE contact list

Instrument LongName	New ICB Industry Name	Email
Mine Restoration Inv Limited	Industrials	admin@mantengu.com
Textainer Group Holdings Limited	Industrials	
Textainer Group Holdings Distribution Line	Industrials	ahh@textainer.com
Sappi Southern Africa Limited	Basic Materials	andre.oberholzer@sappi.com
Argent Industrial Limited	Industrials	argent7@argent.co.za
Discovery Limited	Financials	askTheCFO@discovery.co.za
Discovery Limited B pref	Financials	askTheCFO@discovery.co.za
ARB Holdings Limited	Industrials	billyn@arbhold.co.za
Brikor Limited	Industrials	bricks@brikor.co.za
Trematon Capital Investments Limited	Financials	cgarvie@trematon.co.za
Erin Energy Corporation	Energy	Chris.dutoit@erinenergy.com
Basil Read Holdings Limited	Industrials	communications@basilread.co.za
Onelogix Group Limited	Industrials	contact_us@onelogix.com
Marshall Monteagle plc	Industrials	contactus@monteaglegroup.com
PPC Limited	Industrials	contactus@ppc.co.za
Harmony GM Co Limited	Basic Materials	corporate@harmony.co.za
Raubex Group Limited	Industrials	corporate@raubex.co.za
Anglo American plc	Basic Materials	corporateaffairs@angloamerican.co.uk
Bell Equipment Limited	Industrials	Diana.McIlrath@za.bellequipment.com
Liberty Group Limited	Financials	dumisani.mtshali@liberty.co.za
WHITE WATER RESOURCES Limited	Basic Materials	dwelder@shaw.ca
ELB Group Limited	Industrials	Elb@elbquip.co.za
Rand Merchant Inv Holdings Limited	Financials	ellen.marais@rmb.co.za

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RMB Holdings Distribution Line	Financials	ellen.marais@rmb.co.za
Capitec Bank Holdings Limited	Financials	enquiries@capitecbank.co.za
Capitec Bank Holdings Pref	Financials	enquiries@capitecbank.co.za
Capitec Holdings Distribution Line	Financials	enquiries@capitecbank.co.za
Imperial Logistics Limited	Industrials	esha.mansingh@imperiallogistics.com
Life Healthcare group Holdings Limited	Health Care	general.information@lifehealthcare.co.za
Firstrand Limited B Pref	Financials	Gill.Raine@firstrand.co.za
Omnia Holdings Limited	Basic Materials	group@omnia.co.za
A E C I Limited	Basic Materials	groupcommunications@aeciworld.com
AECI Limited 5,5% Pref	Basic Materials	groupcommunications@aeciworld.com
ABSA Bank Limited Pref	Financials	Groupsec@absa.co.za
Absa Group Limited	Financials	Groupsec@absa.co.za
Sabvest Capital Limited	Financials	ho@sabvest.com
Ellies Holdings Limited	Industrials	holdings@ellies.co.za
Hulamin Limited	Basic Materials	hulamin@hulamin.co.za
4Sight Holdings Limited	Financials	info@4sightholdings.com
Adcock Ingram Holdings Limited	Health Care	info@adcock.com
Adcorp Holdings Limited	Industrials	info@adcorp.co.za
Advanced Health Limited	Health Care	info@advancedhealth.co.za
African Equity Empowerment Investments Limited	Financials	info@aeei.co.za
African Dawn Capital Limited	Financials	info@afdawn.co.za
Alexander Forbes group Holdings Limited	Financials	info@aforbes.co.za
Afrimat Limited	Industrials	info@afrimat.co.za
Afristrat Investment Holdings Limited	Financials	info@afristrat.ltd
African Rainbow Capital Investments Limited	Financials	info@arci.mu
Ascendis Health Limited	Health Care	info@ascendishealth.com
Astoria Investments Limited	Financials	info@astoria.mu

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Bauba Resources Limited	Basic Materials	info@bauba.co.za
Bidvest Limited	Industrials	info@bidvest.com
Brimstone Investment Corporation Limited	Financials	info@brimstone.co.za
Brimstone Investment Corporation Limited-N	Financials	info@brimstone.co.za
Buffalo Coal Corporation	Energy	info@buffalocoal.co.za
Calgro M3 Holdings Limited	Industrials	info@calgrom3.com
Chrometco Limited	Basic Materials	info@chrometco.co.za
Cons Infrastructure group Limited	Industrials	info@ciglimited.com
Clientele Limited	Financials	info@clientele.co.za
Conduit Capital Limited	Financials	info@conduitcapital.co.za
Coronation Fund Managers Limited	Financials	info@coronation.co.za
CSG Holdings Limited	Industrials	info@csggroup.co.za.
Deneb Investments Limited	Financials	info@deneb.co.za
Eastern Platinum Limited	Basic Materials	info@eastplats.com
enX Group LImited	Industrials	info@enxgroup.co.za
Europa Metals Limited	Basic Materials	info@europametals.com
Finbond Group Limited	Financials	info@finbond.co.za
Firestone Energy Limited	Energy	info@firestone.co.za
Firestone Energy Limited Opt	Energy	info@firestone.co.za
Glencore plc	Basic Materials	info@glencore.com
Go Life International Limited	Health Care	Info@golife.co.za
Grand Parade Investments Limited	Financials	info@grandparade.co.za
Hosken Consolidated Investments Limited	Financials	info@hci.co.za
Hudaco Industries Limited	Industrials	info@hudaco.co.za
Hulisani Limited	Financials	info@hulisani.co.za
Invicta Holdings Limited	Industrials	info@invictaholdings.co.za
Invicta Holdings Limited	Industrials	info@invictaholdings.co.za
Jubilee Metals Group plc	Basic Materials	info@jubileemetalsgroup.com
KAP Industrial Holdings Limited	Industrials	info@kap.co.za
Kaydav Group Limited	Industrials	info@kaydavgroup.co.za

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Kibo Energy plc	Basic Materials	info@kibo.energy
Kore Potash plc	Basic Materials	info@korepotash.com
Liberty Holdings 11c Pref	Financials	info@liberty.co.za
Long 4 Life Limited	Financials	info@long4life.co.za
Lonrho plc	Industrials	info@lonrho.com.
Mahube Infrastructure Limited	Financials	info@mahube.africa
Master Drilling group Limited	Basic Materials	info@masterdrilling.com
Mediclinic International plc	Health Care	info@mediclinic.com
Metrofile Holdings Limited	Industrials	info@metrofile.com
Momentum Metropolitan Holdings Limited	Financials	info@momentummetropolitan.co.za
Montauk Renewables Inc	Energy	info@montaukenergy.com
Mpact Limited	Industrials	info@mpact.co.za
Murray & Roberts Holdings Limited	Industrials	info@murrob.com
Muvoni Tech Group Limited	Industrials	info@muvoni.co.za
Nampak Limited	Industrials	info@nampak.com
Nampak Limited 6%Pref	Industrials	info@nampak.com
Nampak Limited 6,5%Pref	Industrials	info@nampak.com
Net 1 UEPS Tech Inc	Industrials	info@net.co.za
Novus Holdings Limited	Industrials	info@novus.holdings
NVest Financial Holdings Limited	Financials	info@nvest.co.za
Oando plc	Energy	info@oandoplc.com
Orion Minerals Limited	Basic Materials	info@orionminerals.com.au
Pan African Resources plc	Basic Materials	info@paf.co.za
PSG Financial Serv Pref	Financials	info@psg.co.za
PSG Group Limited	Financials	info@psg.co.za
PSG Konsult Limited	Financials	info@psg.co.za
PSV Holdings Limited	Industrials	info@psvholdings.com
Purple Group Limited	Financials	info@purplegroup.co.za
Randgold & Exploration Company Limited	Basic Materials	info@randgoldexp.co.za
RECM and Calibre Limited	Financials	info@recm.co.za

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Reinet Investments S.C.A	Financials	info@reinet.com
RGT Smart Market Int Limited	Industrials	info@rgtsmart.co.za
Rockwell Diamonds Inc	Basic Materials	info@rockwelldiamonds.co.za
Santam Limited	Financials	info@santam.co.za
Santova Logistics Limited	Industrials	info@santova.co.za
Sasfin Holdings Limited	Financials	info@sasfin.com
Sasfin Holdings Limited	Financials	info@sasfin.com
Sephaku Holdings Limited	Industrials	info@sepman.co.za
South Ocean Holdings Limited	Industrials	info@southoceanholdings.com
Spanjaard Limited	Basic Materials	info@spanjaard.co.za
Stellar Cap Partners Limited	Financials	info@stellarcapital.co.za
Sygnia Limited	Financials	info@sygnia.co.za
Trustco Group Holdings Limited	Financials	info@tgh.na
Trencor Limited	Industrials	info@trencor.net
Union Atlantic Minerals Limited	Basic Materials	info@unionatlanticminerals.com
Value Group Limited	Industrials	info@value.co.za
W G Wearne Limited	Industrials	info@wearne.co.za
Wescoal Holdings Limited	Energy	info@wescoal.com
Workforce Holdings Limited	Industrials	info@workforce.co.za
York Timber Holdings Limited	Basic Materials	info@york.co.za
Zeder Investments Limited	Financials	info@zeder.co.za
Alphamin Resources Corporation	Basic Materials	infor@alphaminresources.com
Barloworld Limited	Industrials	invest@barloworld.com
Barworld Limited 6%Pref	Industrials	invest@barloworld.com
Brait SE	Financials	invest@brait.com
Reunert Limited	Industrials	invest@reunert.co.za
RH Bophelo Limited	Financials	invest@rhbophelo.co.za
Aveng Limited	Industrials	Investor.relations@avenggroup.com
Firstrand Limited Distribution Line	Financials	investor.relations@firstrand.co.za

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Firstrand Limited	Financials	investor.relations@firstrand.co.za
Gemfields Group Limited	Basic Materials	investor.relations@gemfields.com
Sasol Limited	Basic Materials	investor.relations@sasol.com
Trellidor Holdings Limited	Industrials	investor.relations@trellidor.co.za
Impala Platinum Holdings Limited	Basic Materials	investor@implats.co.za
IMPLATS 2022 CONV BOND	Basic Materials	investor@implats.co.za
MC Mining Limited	Energy	investor@mcmining.co.za
Afrocentric Invetsment Corporation Limited	Health Care	investor-relations@afrocentric.za.com
Efora Energy Limited	Energy	investorrelations@eforaenergy.com
Exxaro Resources Limited	Energy	investorrelations@exxaro.com
Grindrod Limited	Industrials	investorrelations@grindrod.co.za
Grindrod Limited	Industrials	investorrelations@grindrod.co.za
Nutritional Holdings Limited	Health Care	investorrelations@nutritionalholdings.co.za
Old Mutual Limited	Financials	investorrelations@oldmutual.com
Quilter Plc	Financials	investorrelations@quilter.com
Renergen Limited	Energy	investorrelations@renergen.co.za
Standard Bank Group Limited	Financials	investorrelations@standardbank.co.za
Standard Bank Group Pref	Financials	investorrelations@standardbank.co.za
Std Bank Group 6,5%Pref	Financials	investorrelations@standardbank.co.za
Anglogold Ashanti Limited	Basic Materials	investors@anglogoldashanti.com
Gold Fields Limited	Basic Materials	investors@goldfields.co.za
African Rainbow Minerals Limited	Basic Materials	ir.admin@arm.co.za
Grindrod Shipping Holdings Limited	Industrials	ir@grindrodshipping.com

Classification: Public

JSE Limited	Financials	ir@jse.co.za
Mondi plc	Basic Materials	ir@mondigroup.com
Netcare Limited	Health Care	ir@netcare.co.za
Netcare Limited Pref	Health Care	ir@netcare.co.za
Sibanye Stillwater Limited	Basic Materials	ir@sibanyestillwater.com
Wesizwe Platinum Limited	Basic Materials	irmanager@wesizwe.co.za
DRDGold Limited	Basic Materials	james@rair.co.za
Middle East Diamond Resources Limited	Basic Materials	james@sablemetals.co.za
Merafe Resources Limited	Basic Materials	kajal@meraferesources.co.za
Anglo American Platinum Limited	Basic Materials	kmphahlele@angloplat.com
Labat Africa Limited	Industrials	labatafrica@mwebbiz.co.za
Mazor Group Limited	Industrials	LIZNA@MAZOR.CO.ZA
London Finance & Investment Group plc	Financials	mail@city-group.com
Cafca Limited	Industrials	marketing@cafca.co.zw
Hwange Colliery Limited	Energy	marketing@hwangecolliery.co.zw
Super Group Limited	Industrials	marketing@supergrp.com
Remgro Limited	Financials	ml@remgro.com
Vunani Limited	Financials	mmazongo@vunanigroup.co.za
Nedbank Group Limited	Financials	nedbankgroupir@nedbank.co.za
Nedbank Limited Pref	Financials	nedbankgroupir@nedbank.co.za
Kumba Iron Ore Limited	Basic Materials	nerina.bodasing@angloamerican.com
Zarclear Holdings Limited	Financials	nfo@zarclear.com
Universal Partners Limited	Financials	pierrej@universalpartners.mu
Soapstone Investment Limited	Basic Materials	ploudon@diamondcorp.plc.uk
BHP Group Plc	Basic Materials	prakash.kakkad@bhp.com
Primeserv Group Limited	Industrials	productivity@primeserv.co.za
EPE Capital Partners Limited	Financials	rdyer@ethos.co.za

Classification: Public

South32 Limited	Basic Materials	Rebecca.Healy@south32.net
INTEGREAR Limited	Industrials	remortgage@integrar.services
Transaction Capital Limited	Financials	roneng@transactioncapital.co.za
Aspen Pharmacare Holdings Limited	Health Care	rverster@aspenpharma.com
Bowler Metcalf Limited	Industrials	sales@bowler.co.za
BEE - Sasol Limited	Basic Materials	sasol@jseinvestorservices.co.za
Tharisa plc	Basic Materials	sdewitt@tharisa.com
Insimbi Industrial Holdings Limited	Basic Materials	shares@insimbi.co.za
Resource Generation Limited	Energy	SMatthews@resgen.com.au
Investec Bank Limited	Financials	snoik@investec.co.za
Investec Limited	Financials	snoik@investec.co.za
Investec Limited Pref	Financials	snoik@investec.co.za
Investec plc	Financials	snoik@investec.co.za
Investec plc Pref	Financials	snoik@investec.co.za
Investec plc Pref (Rand)	Financials	snoik@investec.co.za
MTN Zakhele Futhi (RF) Limited	Financials	SSA-ZakheleFuthi@Nedbank.co.za
Stefanutti Stocks Holdings Limited	Industrials	stefjhb@stefanutti.co.za
YeboYethu (RF) Limited	Financials	support@yeboyethushares.co.za
Transpaco Limited	Industrials	transpaco@transpaco.co.za
Northam Platinum Limited	Basic Materials	trish.beale@norplats.co.za
Zambezi Plat RF Limited Pref	Basic Materials	trish.beale@norplats.co.za
Royal Bafokeng Platinum Limited	Basic Materials	vanessa@bafokengplatinum.co.za
Royal Bafokeng Platinum Limited	Basic Materials	vanessa@bafokengplatinum.co.za
Ninety One Limited	Financials	varuni.dharma@ninetyone.com
Ninety One Limited	Financials	varuni.dharma@ninetyone.com
Wilson Bayly Holmes-Ovcon Limited	Industrials	wbhoho@wbho.co.za

Classification: Public

ArcelorMittal South Africa Limited	Basic Materials	webmaster@mittalsteelsa.com
Sanlam Limited	Financials	webmaster@sanlam.co.za
Anchor Group Limited	Financials	info@anchorgroup.com

Classification: Public

APPENDIX 5: Characteristics of the Research Population

Table 3: My organisation is listed on the JSE

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	No	2	5.4	5.4	5.4
	Yes	35	94.6	94.6	100.0
	Total	37	100.0	100.0	

Table 4: My organisation participated in PPPs in the past

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	No	12	32.4	32.4	32.4
	Yes	25	67.6	67.6	100.0
	Total	37	100.0	100.0	

Table 5: Industry Distribution

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Basic materials	8	21.6	21.6	21.6
	Energy	4	10.8	10.8	32.4
	Financials	13	35.1	35.1	67.6
	Healthcare	4	10.8	10.8	78.4
	Industrials	8	21.6	21.6	100.0
		37	100.0	100.0	

Classification: Public

Table 6: Executive/Director and/or in senior leadership within the organisation

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	No	9	24.3	24.3	24.3
	Yes	28	75.7	75.7	100.0
	Total	37	100.0	100.0	

Classification: Public

APPENDIX 6: QUANTITATIVE RESULTS AND FINDINGS

Table 7: Frequency of participants responses to Access to information and participation in PPPs

		Valid percentage (%)						
B1	**Access to information and participation in PPPs**	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std Dev**
1	South African PPP Unit is open and transparent about available PPP opportunities	6.3	28.1	21.9	37.5	6.3	3.09	1.088
2	PPPs bidding documents are easily accessible to our organisation	6.3	21.9	18.8	43.8	9.4	3.28	1.114
3	PPP provisions and framework are easy to understand for purposes of participating in PPPs	6.3	37.5	15.6	37.5	3.1	2.94	1.076
4	PPP bid timeframe provides for adequate time for bidders to prepare competitive offers	3.1	31.3	40.6	25	0	2.88	0.833
5	Best-practice case studies are available from PPP Unit for review by private sector	12.5	28.1	46.9	12.5	0	2.59	0.875
6	The value-for-money concept is sufficiently well articulated by the PPP Unit	6.3	31.3	40.6	15.6	6.3	2.84	0.987
7	The scope of PPPs in South Africa in the past 20 years has been broad enough in terms of sectors	12.5	31.3	21.9	25	9.4	2.87	1.212

1=Strongly Disagree 2=Disagree 3=Neither Agree nor Disagree 4 =Agree 5=Strongly Agree Mean Std. Deviation

Classification: Public

Table 8: Frequency of participant responses to PPP framework, regulations and provisions

		Valid percentage (%)						
B2	**PPP Framework, Regulations and Provisions**	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std Dev**
8	Standardised PPP Provisions/Framework are crucial to encourage private sector participation in PPPs	6.5	9.7	3.2	58.1	22.6	3.81	1.08
9	The length of PPP preparation cycle is incompatible with fast-tracked projects	6.5	9.7	22.6	51.6	9.7	3.48	1.029
10	The complexity of the PPP lifecycle is a major impediment to a broad adoption of this procurement model by state entities and municipalities	6.5	6.5	16.1	54.8	16.1	3.68	1.045
11	There are enough certified PPP practitioners to support companies with bid preparations	3.2	54.8	32.3	6.5	3.2	2.52	0.811
12	PPP framework, provisions, regulations are NOT regularly updated to keep up with PPP participants' feedback	3.2	6.5	25.8	51.6	12.9	3.65	0.915
13	The current PPP Framework is adequately supportive of the Transformation Agenda (including the emergence of black industrialists and the promotion of Targeted Enterprises and Black SMMEs)	9.7	35.5	12.9	35.5	6.5	2.94	1.181
14	The lack of standardised PPP agreement templates is an impediment to broad private sector participation	0	12.9	22.6	51.6	12.9	3.65	0.915

1=Strongly Disagree 2=Disagree 3=Neither Agree nor Disagree 4 =Agree 5=Strongly Agree Mean Std. Deviation

Table 9: Frequency of participants responses to Transaction costs

Classification: Public

		Valid Percent (%)						
B3	**Transaction costs**	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std. Dev**
15	The cost of PPP bid preparation and submission in South Africa remains high (e.g. bid/performance bonds)	0	6.9	20.7	55.2	17.2	3.83	0.805
16	High transaction costs (for example for legal, tax, B-BBEE, engineering, and environmental consultants) act as a deterrent for private sector participation	0	13.8	13.8	51.7	20.7	3.79	0.94
17	Funding terms from Commercial Banks and Development Finance Institutions lead to longer payback period	3.4	13.8	24.1	44.8	13.8	3.52	1.022
18	Funding terms from both Commercial Banks and Development Finance Institutions have a negative impact on project returns	6.9	13.8	27.6	44.8	6.9	3.31	1.039

1=Strongly Disagree 2=Disagree 3=Neither Agree nor Disagree 4 =Agree 5=Strongly Agree Mean Std. Deviation

Classification: Public

Table 10: Frequency of Participants to responses to Incentive mechanisms

		Valid percentage (%)						
C1	**Incentive mechanisms**	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std Dev**
1	During PPPs' pre-feasibility stage, government departments should undertake more comprehensive risk assessments in partnership with the PPP Unit/GTAC	0	0	6.9	58.6	34.5	4.28	0.591
2	There is a need for a more balanced approach to risk allocation between the private and public parties in PPPs to speed up both commercial and financial closes of PPPs in SA	0	6.9	3.4	48.3	41.4	4.24	0.83
3	Government guarantees are an essential component of efforts to enhance the project bankability of PPPs in SA	0	0	10.3	48.3	41.4	4.31	0.66
4	There is a need for attractive tax rebates and incentives to increase participation by the private sector	0	0	3.4	51.7	44.8	4.41	0.568
5	Current mechanisms for unsolicited PPP proposals by the private sector are constraining the adoption of PPPs by SA Inc.	0	3.4	13.8	58.6	24.1	4.03	0.731

1=Strongly Disagree 2=Disagree 3=Neither Agree nor Disagree 4 =Agree 5=Strongly Agree Mean Std. Deviation

Classification: Public

Table 11: Frequency of participants responses to PPP impact on company growth & business model

		Valid percentage (%)						
C2	**PPP impact on company growth and business models**	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std Dev**
6	A sustainable PPP pipeline has the potential to increase your company focus on annuity-driven revenues and projects	0	3.4	3.4	62.1	31	4.21	0.675
7	Securing PPP projects can potentially be a major contributor to your company's increased valuation	3.4	6.9	10.3	65.5	13.8	3.79	0.902
8	A sustainable PPP pipeline has the potential to increase your company's investment in human capital/skills development	3.4	3.4	3.4	62.1	27.6	4.07	0.884
9	Securing PPP projects can potentially lead your company to create employment	3.4	3.4	3.4	41.4	48.3	4.28	0.96
10	Securing PPP projects can potentially improve your company's risk diversification	3.4	3.4	17.2	55.2	20.7	3.86	0.915
11	Securing PPP projects in SA can potentially be an avenue to expanding in other markets where the PPP model is mature and well-entrenched	0	10.3	3.4	58.6	27.6	4.03	0.865

1=Strongly Disagree 2=Disagree 3=Neither agree nor disagree 4 =Agree 5=Strongly agree Mean Std. Deviation

Classification: Public

Table 12: Frequency of participants to PPP as an effective tool to stimulate infrastructure and economic growth

		Valid percentage (%)						
D	**PPP as an effective tool to stimulate infrastructure and economic growth**	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std Dev**
1	PPPs are an effective tool for delivering large-scale infrastructure projects through better capital allocation	0	0	10.3	44.8	44.8	4.34	0.67
2	The value-for-money principle at the core of PPPs offers better guarantees of efficient capital allocation than through traditional procurement	3.4	3.4	13.8	58.6	20.7	3.9	0.9
3	Both social and economic impacts of PPPs are more measurable than through traditional procurement	3.4	3.4	31	44.8	17.2	3.69	0.93
4	PPPs have the ability to deliver accelerated and better-quality service to communities	0	0	10.3	51.7	37.9	4.28	0.649
5	PPP have potential to create long-term employment for citizens	0	0	6.9	44.8	48.3	4.41	0.628
6	PPPs help accelerate infrastructure development that requires large-scale capital investment	0	0	6.9	37.9	55.2	4.48	0.634
7	Greater PPP pipeline predictability is a powerful condition and an enabler for investment by private sector in PPPs	0	3.4	0	62.1	34.5	4.28	0.649
8	PPPs are at present concentrated in limited sectors – and not enough in social infrastructure (such as education, water and health)	0	3.4	6.9	55.2	34.2	4.21	0.726

1=Strongly Disagree 2=Disagree 3=Neither agree nor disagree 4 =Agree 5=Strongly agree Mean Standard deviation

Classification: Public

Table 13: Reliability and Validity

Name	Number of factors	% Variance expected	KMO	Loadings	Cronbach Alpha	Mean	Standard deviation
B1 PPP participation	1	49.752	0.724	0.605 - 0.799	0.825	2.9286	0.72208
B2 PPP regulations	1	42.558	0.719	0.462 - 0.827	0.754	3.5438	0.63719
B3 Transaction costs	1	41.799	0.496	-0.011 -0.890	0.590	3.5402	0.74223
C1 Incentive mechanisms	1	45.472	0.62	0.513 - 0.792	0.674	4.2552	0.45007
C2 Impact growth	1	78.763	0.88	0.831- 0.951	0.945	4.0402	0.77107
D1 PPP tool	1	46.467	0.614	0.574 - 0.795	0.825	4.1983	0.49044

Classification: Public

Table 14: Comparisons of participants in executive/senior leadership and non-executive/ senior leadership roles

Name	I am an executive, a director and/or in senior leader within the organisation	N	Mean	Standard deviation	p-value (two-sided)	Effect size (Cohens d)
B1 PPP participation	No	8	3.1786	.48143	0.910	0.045
	Yes	24	2.8452	.77667		
B2 PPP regulations	No	7	3.4082	.22480	0.112	0.272
	Yes	24	3.5833	.71356		
B3 Transaction costs	No	7	3.6667	.38490	0.791	0.222
	Yes	22	3.5000	.82776		
C1 Incentive mechanisms	No	7	3.9429	.22254	0.411	0.979
	Yes	22	4.3545	.46160		
C2 Impact growth	No	7	4.0714	.26972	0.112	0.052
	Yes	22	4.0303	.87836		
D1 PPP tool	No	7	3.9107	.26726	0.055	0.806
	Yes	22	4.2898	.51378		

Classification: Public

Table 15: ANOVA

		N	Mean	Standard deviation	p-value	Effect sizes	
						Basic materials with	Financials with
B1 PPP participation	Basic materials	8	2.91	0.82	0.990	0.05	0.04
	Financials	12	2.95	0.56			
	Industrials	12	2.92	0.85		0.01	
	Total	32	2.93	0.72			
B2 PPP regulations	Basic materials	8	3.77	0.41	0.529	0.39	0.00
	Financials	12	3.46	0.78			
	Industrials	11	3.47	0.62		0.49	
	Total	31	3.54	0.64			
B3 Transaction costs	Basic materials	7	3.57	0.46	0.131	0.40	0.71
	Financials	11	3.21	0.90			
	Industrials	11	3.85	0.62		0.45	
	Total	29	3.54	0.74			
C1 Incentive mechanisms	Basic materials	7	4.26	0.51	0.983	0.04	0.07
	Financials	11	4.24	0.50			
	Industrials	11	4.27	0.40		0.03	
	Total	29	4.26	0.45			
C2 Impact growth	Basic materials	7	4.21	0.66	0.238	0.04	0.50
	Financials	11	4.24	0.42			
	Industrials	11	3.73	1.03		0.47	
	Total	29	4.04	0.77			
D1 PPP tool	Basic materials	7	4.18	0.30	0.988	0.02	0.04
	Financials	11	4.19	0.61			
	Industrials	11	4.22	0.50		0.07	
	Total	29	4.20	0.49			

Table 16: Updated Industry Distribution

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Basic materials	12	32.43	32.43	32.4
	Financials	13	35.14	35.14	67.6
	Industrials	12	32.43	32.43	100.0
	Total	37	100.0	100.0	

Classification: Public

Table 17: Correlation

			B1 PPP Participation	B2 PPP Regulations	B3 Transaction costs	C1 Incentive mechanisms	C2 Impact growth	D1 PPP tool
Spearman's rho	B1 PPP Participation	Correlation Coefficient	1	-0.157	0.052	-0.092	0.096	-0.069
		Sig. (2-tailed)		0.399	0.789	0.636	0.62	0.723
		N	32	31	29	29	29	29
	B2 PPP Regulations	Correlation Coefficient	-0.157	1	0.293	.434*	.415*	0.313
		Sig. (2-tailed)	0.399		0.123	0.019	0.025	0.099
		N	31	31	29	29	29	29
	B3 Transaction costs	Correlation Coefficient	0.052	0.293	1	.374*	0.155	-0.085
		Sig. (2-tailed)	0.789	0.123		0.045	0.422	0.663
		N	29	29	29	29	29	29
	C1 Incentive mechanisms	Correlation Coefficient	-0.092	.434*	.374*	1	.524**	.464*
		Sig. (2-tailed)	0.636	0.019	0.045		0.004	0.011
		N	29	29	29	29	29	29
	C2 Impact growth	Correlation Coefficient	0.096	.415*	0.155	.524**	1	.487**
		Sig. (2-tailed)	0.62	0.025	0.422	0.004		0.007
		N	29	29	29	29	29	29
	D1 PPP tool	Correlation Coefficient	-0.069	0.313	-0.085	.464*	.487**	1
		Sig. (2-tailed)	0.723	0.099	0.663	0.011	0.007	
		N	29	29	29	29	29	29

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Classification: Public

REFERENCES

Abednego, M. P., & Ogunlana, S. O. (2006). Good project governance for proper risk allocation in public-private partnerships in Indonesia. *International Journal of Project Management*, *24*(7), 622–634. https://doi.org/10.1016/j.ijproman.2006.07.010

Arimoro, A. (2018). An Appraisal of the Framework for Public Private Partnership in South Africa. *European Procurement & Public Private Partnership Law Review*, *13*(3), 214–228. https://doi.org/10.21552/epppl/2018/3/8

Ashade, O., & Mutereko, S. (2021). Building Trust and Support for Partnership Agendas through the Requisites of Early Community Involvement. *African Journal of Inter/Multidisciplinary Studies*, *3*(1), 270-281

Awuku, S. A., Bennadji, A., Muhammad-Sukki, F., & Sellami, N. (2022). Public-private partnership in Ghana's solar energy industry: The history, current state, challenges, prospects and theoretical perspective. *Energy Nexus*, *6*(November 2021), 100058. https://doi.org/10.1016/j.nexus.2022.100058

Batra, R. (2021). A thematic analysis to identify barriers, gaps, and challenges for the implementation of public-private-partnerships in housing. *Habitat International*, *118*, 102454. https://doi.org/10.1016/j.habitatint.2021.102454

Beckers, F., & Stegemann, U. (2021). A smarter way to think about public–private partnerships | McKinsey. *McKinsey & Company*, *September*. https://www.mckinsey.com/business-functions/risk-and-resilience/our-insights/a-smarter-way-to-think-about-public-private-partnerships

Burger, P. (2009). The Dedicated PPP Unit of the South African National Treasury. *Policy, Finance & Management for Public-Private Partnerships*, 82–96. https://doi.org/10.1002/9781444301427.ch5

Buso, M., Moretto, M., & Zormpas, D. (2021). Excess returns in Public-Private Partnerships: Do governments pay too much? *Economic Modelling*, *102*(June), 105586. https://doi.org/10.1016/j.econmod.2021.105586

Bwanali, S., & Rwelamila, P. (2017). Public Private Partnerships: A possible alternative for delivery of infrastructure projects in Africa. *International Journal of Construction Supply Chain Management*, *7*(3), 93-109.

Chan, A. P. C., Lam, P. T. I., Chan, D. W. M., Cheung, E., & Ke, Y. (2010). Critical Success Factors for PPPs in Infrastructure Developments: Chinese Perspective. *Journal of Construction Engineering and Management*, *136*(5), 484–494. https://doi.org/10.1061/(asce)co.1943-7862.0000152

Classification: Public

Chege, L. (2001). *Recent trends in private financing of public infrastructure projects in South Africa*. 1–8.

Creswell, J. (2014). Research Design. In *Sage* (4th ed.). https://fe.unj.ac.id/wp-content/uploads/2019/08/Research-Design_Qualitative-Quantitative-and-Mixed-Methods-Approaches.pdf

Cwik, T., & Wieland, V. (2010). *Working Paper Series:Keynesian Government Spending Multipliers and Spillover in the Euro area.* https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1267.pdf

Department Of Energy. (2019). The South African Energy Sector Report. In *Department of Energy, SA* (Vol. 33, Issue 1). http://dx.doi.org/10.1016/j.powtec.2017.06.008%0Ahttps://doi.org/10.1016/j.jwpe.2017.08.012%0Ahttps://doi.org/10.1016/j.jhazmat.2021.125853%0Ahttps://doi.org/10.1080/10962247.2018.1521349%0Ahttp://www.energy.gov.za

Department of Transport. (2020). Department of Transport Annual Report. In *National Department of Transport* (Vol. 35). http://www.apil.org.uk/files/pdf/ConsultationDocuments/697.pdf

Dlamini, Z. H., & Botes, L. (2022). Challenges to Effective and Efficient Infrastructure of Public Private Partnerships in South Africa. *Administratio Publica*, *30*(1), 56-75.

Farlam, P. (2005). Working together. *Assessing public-private partnerships in Africa, Nepad Policy Focus Series, the South African Institute of International Affairs (SAIIA), Pretoria, SA*.

Fombad, M. C. (2019). Enhancing accountability in public–private partnerships in South Africa. *Southern African Business Review*, *18*(3), 66–92. https://doi.org/10.25159/1998-8125/5686

FTSE Group. (2022). Industry Classification Benchmark Structure. In *FTSE Group* (Issue April). http://www.icbenchmark.com/Site/ICB_Structure

FTSE Russel. (2019). *Industry Classification Benchmark (ICB) reclassification* (Issue December). https://hub.ipe.com/download?ac=95082

Global Infrastructure Hub. (2019a). *PPP Risk Allocation Tool 2019 Edition - Transport*. 1–16.

Global Infrastructure Hub. (2019b). *PPP Risk Allocation Tool 2019 Edition - Transport*.

IBM. (2020). Propel research and analysis with a comphrehensive statistical software solution. In *IBM Corporation*. https://www.ibm.com/downloads/cas/ERYRD6G5

IBM. (2021). *SPSS Statistics 28 Brief Guide*.

Classification: Public

https://www.ibm.com/docs/en/SSLVMB_28.0.0/pdf/IBM_SPSS_Statistics_Brief_Guide.pdf

Ittmann, H. (2016). Private – public partnerships : A mechanism for freight transport infrastructure delivery ? *Journal of Transport and Supply Chain Management*, 1–13.

Jomo, K., Chowdhury, A., Sharma, K., & Platz, D. (2016). Public-Private Partnerships and the 2030 Agenda for Sustainable Development: Fit for purpose? *DESA Working Paper*, *43*(11), 998–1005. http://www.un.org/en/development/%0Ahttp://www.un.org/en/development/%0Ahttps://www.oecd-ilibrary.org/content/paper/f42bd4bb-en%0Ahttps://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=2288&menu=1515%0Ahttp://www.un.org/esa/desa/papers/2016

Khmel, V., & Zhao, S. (2016). Arrangement of financing for highway infrastructure projects under the conditions of Public-Private Partnership. *IATSS Research*, *39*(2), 138–145. https://doi.org/10.1016/j.iatssr.2015.05.002

Mavuso, B. B., Bay, W., Commission, Z., & Articles, R. (2022). Busisiwe Mavuso | The public- private partnership model will be crucial in upgrading SA ' s ports. *Business Leadership South Africa Hub*, 3–5. https://hub.blsa.org.za/infrastructure/infrastructure-transnet/

National Planning Commission. (2010). Our future - make it work: National Development Plan. In *National Development Plan (2030)*. https://www.gov.za/sites/default/files/gcis_document/201409/ndp-2030-our-future-make-it-workr.pdf

National Treasury. (2015). Public Infrastructure:Standard for Infrastructure Procurement and Delivery Management. In *National Treasury*. https://doi.org/10.1057/9781137336583.1469

National Treasury. (2017a). National Budget Review 2017 Annexure E Public-private partnerships. In *National Treasury, Pretoria*. http://www.treasury.gov.za/documents/national budget/2017/default.aspx

National Treasury. (2017b). *Public-private partnerships* (Issue March). http://www.treasury.gov.za/documents/national budget/2021/review/Annexure E.pdf

Nel, D. (2014). International best practice in Public Private Partnerships and Risk Management. *Administratio Publica*, *22*(2), 46-67

Parats, J., Demaestri, E., & Chiara, J. (2018). Public-Private Partnership Databases: Analytical Description and Comparative of National and International Databases. In *Inter-American Development Bank* (Issue 1). file:///C:/Users/nmangolele/Downloads/Public-Private-Partnership-Databases-Analytical-Description-and-Comparative-Analysis-of-National-and-International

Classification: Public

Roehrich, J. K., Lewis, M. A., & George, G. (2014). Are public-private partnerships a healthy option? A systematic literature review. *Social Science and Medicine*, *113*, 110–119. https://doi.org/10.1016/j.socscimed.2014.03.037

Ruiters, C., & Matji, M. P. (2016). Public–private partnership conceptual framework and models for the funding and financing of water services infrastructure in municipalities from selected provinces in South Africa. *Water SA*, *42*(2), 291–305. https://doi.org/10.4314/wsa.v42i2.13

Sinha, A. K., & Jha, K. N. (2021). Financing constraints of public–private partnership projects in India. *Engineering, Construction and Architectural Management*, *28*(1), 246–269. https://doi.org/10.1108/ECAM-06-2018-0237

Tan, J., & Zhao, J. Z. (2019). The Rise of Public–Private Partnerships in China: An Effective Financing Approach for Infrastructure Investment? In *Public Administration Review* (Vol. 79, Issue 4). https://doi.org/10.1111/puar.13046

The South African Government. (2022). *President Cyril Ramaphosa: 2022 State of the Nation Address*. https://www.gov.za/speeches/president-cyril-ramaphosa-2022-state-nation-address-10-feb-2022-0000

Tian, Y., Minchin, R. E., Petersen, C., Moayed, E., & Adriaens, P. (2022). Financing Public-Private Partnership Infrastructure Projects through Tokenization-enabled Project Finance on Blockchain. *IOP Conference Series: Materials Science and Engineering*, *1218*(1), 012027. https://doi.org/10.1088/1757-899x/1218/1/012027

Urban Land Institute and Ernst & Young. (2013). *Global Priorities, Global Insights*. https://uli.org/wp-content/uploads/ULI-Documents/Infrastructure-2013.pdf

World Bank. (2014a). Overcoming constraints to the financing of infrastructure – Success Stories and Lessons Learned : Country , Sector and Project Examples of Overcoming Constraints to the Financing of Infrastructure. *Transport and Supply Chain Management*, *February*, 29. https://www.g20.org/official_resources/success_stories_and_lessons_learned_country_sector_and_project_examples

World Bank. (2014b). Public-Private Partnerships: -Reference Guide. In *World Bank* (Vol. 2, Issue January). http://www.worldbank.org/en/topic/publicprivatepartnerships/publication/the-ppp-reference-guide-version-20

World Bank. (2021). *Private Participation in Infrastructure - 2021 Annual Report*. https://www.annualreports.com/HostedData/AnnualReports/PDF/NYSE_ABT_2020.pdf

Classification: Public

Zhao, J., Liu, H. J., Love, P. E. D., Greenwood, D. J., & Sing, M. C. P. (2022). Public-private partnerships: A dynamic discrete choice model for road projects. *Socio-Economic Planning Sciences*, *January*, 101227. https://doi.org/10.1016/j.seps.2022.101227

Classification: Public