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The state of South Africa's public–private partnership practices in transport projects: Problems and potential

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Background: Despite growing calls for public–private partnerships (PPPs) to supplement diminishing investment in South Africa's transport sector, the uptake of transport PPPs in the country was low over the past 15 years compared with Brazil, Russia, India and China which performed well in this regard. This low uptake poses several consequences in light of the positive correlation between transport capital investment and economic growth.

Objectives: The study aimed to describe the problems faced in the South African PPP process, firstly by comparing and contrasting PPP practices of South Africa to its counterparts in the Brazil, Russia, India, China and South Africa (BRICS) multilateral forum in view of understanding the reasons for the low uptake of transport PPPs in the country and, secondly, by interviewing transport PPP experts on their opinions on constraints and possible solutions for PPPs in the country.

Method: In light of the limited research on transport PPPs in South Africa, as well as the low level of PPP implementation, secondary data analysis was followed by an exploratory qualitative research design used to obtain rich data from subject experts on the topic at hand.

Results: The main findings reveal that the politicisation of infrastructure through party politics, political risk and domination of the state in the delivery of strategic infrastructure contributes to the low uptake of PPPs.

Conclusion: A need exists to strengthen political commitment for PPPs by centralising and coordinating planning across different tiers of government, while easing the regulatory burden, making them simpler to implement and more attractive to investors and promoting inclusivity. Policymakers can utilise these findings to improve areas of practice requiring intervention.

Keywords: public–private partnership practices; transport sector; South Africa; BRICS; best practice.

Introduction

Over the past 20 years, there have been growing calls in South Africa by policymakers and executives of state-owned enterprises to improve the level of joint investment and partnership by the public and private sectors in the country's major capital projects (Ittmann 2017; Sinkala et al. 2021; Walwyn & Nkolele 2018). These calls were made as a result of concerns regarding the impact of the budget deficit on priorities of the state, such as transport capital investment and the consequences it poses for economic growth (Ittmann 2017). Specifically, the call made by the South African Minister of Finance during the 2016 budget speech could be regarded as one of the most significant pronouncements by the public sector. Unlike previous calls, the Minister made an unequivocal appeal for joint investments in clearly defined capital projects (National Treasury 2016). The minister indicated that without joint investment, the financing of capital projects will increasingly prove to be a challenge because of growing fiscal constraints (National Treasury 2016). This call was restated by the President of the Republic during a meeting with leaders of business and developmental finance institutions when he directed that an infrastructure investment plan be developed that 'outlines a public-private partnership framework and removes policy bottlenecks in engaging with the private sector' (The Presidency 2020: para. 39). In this regard, public–private partnerships (PPPs) in capital projects are widely regarded as a viable option for bridging this deficit by augmenting deficiencies within the public sector budget with private capital (Arimoro 2018).

There is no universally accepted definition of a PPP (Arimoro 2018; Koskela, Rooke & Siriwardena 2016; World Bank Group [WBG] 2015a). For instance, in Brazil, PPP refers to 'contracts between

the government and private sector entities for the purpose of the joint execution or provision of a project or a service traditionally handled by the public sector' (Queiroz, Astesiano & Serebrinsky 2014:12). Russia defines PPP as:

> [C]ooperation of a public partner (the Russian Federation, a region or a municipal authority) and a private partner (a Russian legal entity) on the basis of a PPP agreement entered into pursuant to a tender procedure and aimed at increasing the quality and availability of public services by attracting private investment. (Marquaire 2020:213–214)

In comparison, PPP in India means a project based on a contract or concession agreement between a government or statutory entity on the one side and a private sector company on the other side for delivering an infrastructure service on payment of user charges (WSP International Management Consulting n.d.:3). China defines PPPs as 'long-term contractual collaborations between the government and societal capital in the areas of infrastructure and public services (Tan & Zhao 2019:1).' South Africa refers to PPPs as:

> [*A*] contract between a public-sector institution and a private party, where the private party performs a function that is usually provided by the public sector and/or uses state property in terms of the PPP agreement. (National Treasury 2021:167)

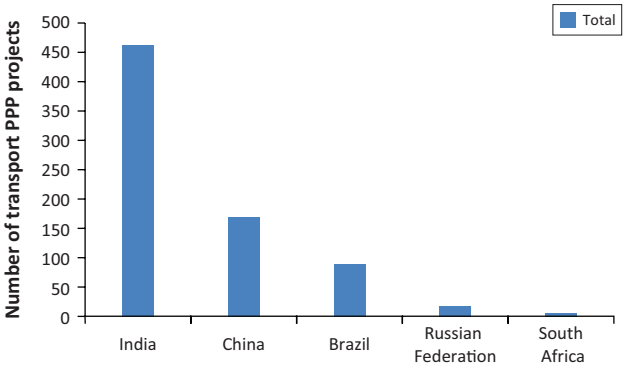
In all instances, the commonality in the definitions of these countries includes the recognition of PPP as a contract or legal agreement between the public and private sectors, wherein the private sector substitutes the public sector in the provision of a public service or good. This indicates that PPPs are legally binding and need to be in the interest of the public. It is also apparent that PPPs in all the BRICS countries (Brazil, Russia, India, China and South Africa) are characterised by the significant transfer of operational, financial and technical risk to the private sector (Marquaire 2020; National Treasury 2021; Queiroz et al. 2014; Tan & Zhao 2019; WSP International Management Consulting n.d.).

Some differences in the definitions are also observed. For example, Russia's definition differs from the rest as it indicates that a PPP agreement is a product of a tender process (Marquaire 2020), which shows that competitive bidding is prioritised for PPP procurement in this country. India's definition reveals that payment is conducted through user charges (WSP International Management Consulting n.d.), which indicates that user charges are the main mode for the generation of revenue. Unlike the other countries, China's definition specifies that the contract period should be long term (Tan & Zhao 2019), which demonstrates that China prioritises projects that offer greater stability and predictability. The South African definition indicates the substitution of a public function by a private party and use of state property in terms of the PPP agreement (National Treasury 2021), which shows that assets not owned by the state and services not typically provided by the state are mostly excluded from these agreements; however, an exception to this rule exists. Based on these definitions, the parameters for a PPP therefore include an agreement between the public and private sector, long-term contract periods, competitive bidding, payment through user-pays, assets owned by the state and a function typically performed by the state.

The growing popularity of this form of procurement across the BRICS countries and the rest of the world can be attributed to the benefits arising from their inherent ability to allow the public sector to leverage private capital and expertise in a manner that yields value for money, affordability and appropriate transfer of risk in the delivery of much-needed capital projects (Arimoro 2018; Churakov 2014; Gopalkrishna & Karnam 2015; Koskela et al. 2016; Mouraviev & Kakabadse 2014). Public–private partnerships are also recognised for their ability to promote regular maintenance of infrastructure over the long term, as this is usually incorporated as a general requirement for such projects (Gopalkrishna & Karnam 2015). The literature also shows that there exist some inherent disadvantages associated with PPPs, such as the prohibitive amount of time, capital and effort that is usually required to obtain the necessary approvals and support from the relevant authorities for implementation (Churakov 2014; Government Technical Advisory Centre [GTAC] 2016; Sanni & Hashim 2014; Thomassen et al. 2016). For instance, the limited capacity of officials to prepare a compelling business case that conforms to regulatory requirements can result in delays (GTAC 2016; Sanni & Hashim 2014; Thomassen et al. 2016). Transaction advisors are then typically appointed at a high cost to the state to assist in 'understanding the different forms of economic organisation and contractual arrangements required in obtaining regulatory approval' (Thomassen et al. 2016:820).

An inspection of the World Bank's Private Participation in Infrastructure Database (WBG 2019) and the PPP database of the GTAC (2019) reveal that South Africa has not been able to emulate the performance of the four largest developing countries on the uptake of PPPs in the transport sector. The disparity in the performance of South Africa compared with its BRICS counterparts is demonstrated in Figure 1, which shows the number of transport PPPs to reach financial closure over the past 15 years.

Whilst the sizes of the economies make comparisons difficult, Figure 1 illustrates the relatively low level of PPP implementation in South Africa, despite calls for a higher level of private sector participation in major infrastructure projects. Of these countries, China has the largest economy with a gross domestic product (GDP) of about USD15.47 trillion, followed by India at USD3.26 tn, Brazil at USD2.06 tn, Russia at USD1.67 tn and South Africa with the smallest economy at USD386.73 bn (World Population Review 2019). A comparison of GDP per capita shows that Russia is ranked highest at USD11.436, followed by China at USD10.679, then Brazil at USD9.577, South Africa at USD6.365 and India at USD2.316 (World Population Review 2019). Even with the relative success of a major PPP such as the Gautrain Rapid Rail project (Gautrain), which is regarded as the largest PPP



	463	168	88	17	3
GDP	USD3.23 trillion	USD15.47 trillion	USD2.06 trillion	USD1.67 trillion	USD386.73 billion
GDP per capita	USD2.316	USD10.679	USD9.577	USD11.436	USD6.356

Source: Adapted from Government Technical Advisory Centre (GTAC), 2019, Projects in preparation, registered in terms of Treasury Regulation 16 and municipal projects registered under the MFMA and MSA as at May 2019, viewed 09 October 2019, from https://www.gtac.gov.za/Publications/Project%20List%20for%20the%20PPP%20Quarterly%20May%202019.pdf; and World Bank Group (WBG), 2019, *Private participation in infrastructure (PPI) database*, viewed 15 February 2018, from https://ppi.worldbank.org/

GDP, gross domestic product; PPP, public–private partnerships.

FIGURE 1: Number of transport public–private partnerships that have reached financial closure in the BRICS countries over the past 15 years.

on African soil (Ittmann 2017), this does not appear to have bolstered the demand for transport PPPs in South Africa. The other two projects to reach financial closure in South Africa over the period under review include the bridge at Beitbridge Border Post by the New Limpopo Bridge Limited and the Durban Passenger Terminal by MSC Cruises (GTAC 2019; WBG 2019). Based on the definition parameters adopted here, some of the success factors for these projects include long-term contract periods, competitive bidding and payment through user-pay, as is evidenced by the Durban Passenger Terminal with a contract period of 25 years, followed by the Gautrain project at 20 years and the Beitbridge Border Post at 15 years (GTAC 2019; WBG 2019). The Durban Passenger Terminal and Gautrain projects both entail competitive bidding, whilst the main revenue source for the Beitbridge Border Post and Gautrain projects is user-pay (WBG 2019). Although the Gautrain project is categorised as a PPP, there is criticism as to whether it deserves to be regarded as such, given the low financial risk to the private sector, as most of the funds for the project emanate from the provincial government (Dachs 2011; National Treasury 2017). In comparison, the Beitbridge Border Post, which has transferred most of the financial risk to the private sector (WBG 2019), deserves to be categorised as a PPP.

In light of the given discussion, this article seeks to describe the problems faced in the South African PPP process, firstly by comparing PPP practices in South Africa to those used by its BRICS counterparts in view of understanding the reasons for the low uptake of transport PPPs in the country and, secondly, to solicit opinions from transport PPP experts on factors that inhibit the uptake of PPPs in the country and recommendations on improvements required to facilitate the uptake. A comparative analysis is important as it could reveal new findings and insights based on the experience of other upper middle-income countries with similar developmental challenges. This view is reinforced by Sanni and Hashim (2014), who question the adoption of systems from developed economies for the promotion of PPPs in sub-Saharan or developing countries. This suggests that countries such as South Africa, which tend to focus on the experiences of developed nations, might be overlooking systems or practices of other comparable developing countries that are yielding positive results (Leighland 2018). Policymakers can utilise these findings to improve areas of practice requiring intervention.

A background to the research is provided in the next section, focusing on a review of literature on PPP practices in the BRICS countries and best practices. This is followed by a description of the research method and design. The findings of the study and discussion thereof are then provided. Finally, based on the findings, a conclusion is then drawn and recommendations for policy improvement and further research identified.

Background

Public–private partnership practices of the BRICS countries and best practice

Best practice refers to:

> [… *A*] working method or set of working methods that is officially accepted as being the best to use in a particular business or industry, usually described formally and in detail. (Cambridge University Press 2017)

For PPPs, best practice includes the establishment of a legal framework for the regulation of PPPs to strengthen investor confidence (International Bank for Reconstruction and Development/The World Bank [IBRD/WB] 2017; Tiong 2013). By contrasting the regulations of PPPs in the BRICS countries, it is revealed that all of these countries have established legal frameworks for PPPs, albeit at differing levels of maturity (Churakov 2014; Ittmann 2017; Meng et al. 2015; Pereira 2014; Telang & Kutumbale 2014). Brazil and Russia appear to be the only BRICS countries with specific legislation for PPPs (Churakov 2014; Pereira 2014). No specific legislation and regulations exist for PPPs in India according to Telang and Kutumbale (2014). Public–private partnerships appear to be regulated through other administrative and commercial laws and regulations of the country (Telang & Kutumbale 2014). Meng et al. (2015) also show that China does not have any specific law that governs PPPs. It regulates PPPs through the *Administrative Measures on Concession of Infrastructure and Public Utilities Projects*, which were adopted in 2015. Similarly, South Africa does not have a specific law that governs PPPs. The country has made provision within its *Public Finance Management Act* No. 1 of 1999 (PFMA) and *Treasury Regulation 16* for the regulation of PPPs undertaken at the national and provincial tiers of government. There is further provision for the regulation of PPPs undertaken at the

municipal tier, using the *Municipal Finance Management Act* No. 56 of 2003 and its regulations and the *Municipal Systems Act* No. 32 of 2003 (Ittmann 2017; National Treasury 2017). It was not apparent in the literature whether or not a specific law for PPPs was required in South Africa or if it would add any value to the current regulatory framework for PPPs (Ittmann 2017; National Treasury 2017), which presents a gap in the literature.

Despite the lack of specific legislation for PPPs in India and China, these two countries have been able to implement the most transport PPPs amongst the BRICS countries, which indicates that a specific law in itself is not a prerequisite to the success of PPPs but rather the quality or substance of the legal framework that governs them. In this vein, the lack of specific legislation suggests that South Africa is implementing best practices when compared with these developing countries; however, an in-depth comparative study of the legal frameworks of India, China and South Africa is required to identify whether substantial similarities and differences exist in these frameworks in order to substantiate this determination.

Best practices also advocate for strong political support and commitment for PPPs (IBRD/WB 2017; Tiong 2013). Literature indicates that strong political support exists for PPPs in the four largest developing economies (Churakov 2014; Gopalkrishna & Karnam 2015; Mouraviev & Kakabadse 2014; Tiong 2013). This is demonstrated in part by several projects approved by the authorities, coupled with the allocation of adequate resources for the implementation of PPPs in their respective countries (Churakov 2014; Gopalkrishna & Karnam 2015; Mouraviev & Kakabadse 2014; Tiong 2013). However, in South Africa, strong political support for PPPs is not evident as, despite occasional statements from ministers and the President, these are not translated into actionable policy or legislation and the statements therefore often lack the backing to convert them into actionable projects (Aigbavboa, Liphadzi & Thwala 2014; Ittmann 2017), which presents a gap.

The literature indicates that PPPs have only attained popularity over the past few years in the BRICS countries, and, as a result, the legislatures of these countries do not have the depth of knowledge and competencies required to provide effective oversight over PPP projects (Churakov 2014; Meng et al. 2015; Pereira 2014). It appears that transparency of processes and proactive disclosure of project information is still a challenge across most of the BRICS countries (Churakov 2014; Ittmann 2017; Lodge et al. 2017; Meng et al. 2015; Pereira 2014; Telang & Kutumbale 2014). This is demonstrated in South Africa by the lack of proactive disclosure of project information (IBRD/WB 2014). In the instance of Brazil, although transparency is a key principle and legal requirement in the bid solicitation process (Pereira 2014), Lodge et al. (2017) showed that there are transparency issues, as demonstrated by the lack of transparency in the handling of large procurements and concession design and procedures.

Excluding Brazil, it is unclear if there is extensive public participation and consultation in the other BRICS countries to promote the public interest (Churakov 2014; Ittmann 2017; Meng et al. 2015; Pereira 2014; Telang & Kutumbale 2014). South Africa does not seem to be conducting extensive public participation and consultation to promote interest amongst the public (Aigbavboa et al. 2014). The literature also indicates that, with the exception of South Africa, there seems to be cooperative decision-making and trust between the public and private sectors of the other BRICS countries (Churakov 2014; Ittmann 2017; Meng et al. 2015; Pereira 2014; Telang & Kutumbale 2014).

Best practices endorse the institutionalisation of PPPs, through the establishment of PPP units at either a national or subnational level (Ittmann 2017; Perera 2016; Polyakova & Vasilyeva 2016). The literature indicates that all the BRICS countries have PPP units and that all these units have clearly defined institutional responsibilities and arrangements (IBRD/WB 2014; Istrate & Puentes 2011). All the BRICS countries have established these units at the national level of their respective governments (Istrate & Puentes 2011). However, there is growing recognition for a need to establish similar units or agencies at the subnational level to improve access to technical competencies at the lower levels of government (Istrate & Puentes 2011).

The adoption of a coherent process that will assist in the identification, selection and assessment of high-quality PPP projects is also prescribed by best practices (Meng et al. 2015; Telang & Kutumbale 2014). An iterative approach in the PPP process is recommended to stop the selection of low-quality projects from being implemented and wasting resources (IBRD/WB 2017). This is achieved by breaking the process into phases and developing and appraising each phase iteratively (IBRD/WB 2017). Aspects of an iterative approach are evident in South Africa as the cycle is fragmented into phases, and approvals from the National Treasury are sought after each phase of the PPP cycle (IBRD/WB 2017). Similarly, clearance is required in India to proceed to the third phase of the cycle (Department of Economic Affairs 2010). Although aspects of an iterative review in the approval requirements of PPPs in India are evident, the high number of projects being terminated that have reached financial closure undermines the sincerity of this process (Agarchand & Laishram 2017). It can take as much as 24–36 months to satisfy all the conditions of the project and financing agreements required to reach financial closure (Mandri-Perrott n.d.), making cancellations at this advanced stage unlikely. Cancellations are typically expected at the pre-feasibility or feasibility stages, as decision-makers would have already had an idea of whether or not to proceed with the said projects, instead of waiting such a long time only to cancel (Beerbohm & Fitzgerald 2019).

The literature advocates for the selection of PPPs with a large project size (IBRD/WB 2017; Tiong 2013). A large project size refers to PPPs with a high cost, which Tiong (2013) suggested should be equal or greater than USD50 bn. This is evident in

the BRICS countries that have a high threshold for PPP project size (Churakov 2014; Meng et al. 2015; National Treasury 2017; Pereira 2014; Telang & Kutumbale 2014). The literature further advocates for the selection of projects with long-term project tenure (IBRD/WB 2017; Tiong 2013). Long-term contracts span a period between 11 and 30 years (Churakov 2014; Meng et al. 2015; Pereira 2014; Telang & Kutumbale 2014). Most of the BRICS countries appear to prioritise long-term PPP projects (Churakov 2014; Meng et al. 2015; National Treasury 2017; Pereira 2014; Telang & Kutumbale 2014). All the BRICS countries involve the preparation and approval of a viable business case as a part of the approval process for implementing PPPs (Churakov 2014; Ittmann 2017; Meng et al. 2015; National Treasury 2017; Pereira 2014; Telang & Kutumbale 2014). However, India seems to be experiencing a challenge relating to the approval of several business cases, which have later been found not to have been viable (Telang & Kutumbale 2014).

Literature reveals several risks that can adversely affect PPPs (Global Infrastructure Hub 2016; Taruvinga 2017). These risks include site risk, design, construction and commissioning risk, operations risk, demand and other commercial risks, regulatory or political risk, change in the legal framework, default risk, economic or financial risk, force majeure and asset ownership (Global Infrastructure Hub 2016; Taruvinga 2017). Risk can also emanate from other sources, which include the availability of labour and raw materials, contract variation, the environment, a faulty tender specification, ground conditions, insolvency of subcontractors and suppliers, the lack of commitment from a partner, the lack of experience in the PPP environment, land expropriation, residual risk and unproven engineering technologies (Taruvinga 2017).

The various types of risks can have a different impact on a project, such as delays, cost overruns or even project failure. For example, Australia has some poor examples of transport PPPs, such as the Sydney Light Rail PPP, where the project cost increased from USD1.6 bn to USD2.77 bn because of a law suit against the government for failing to disclose key information that had a bearing on the project (Gilbert and Tobin 2020). The Cross River Rail PPP in Queensland is another example of a poor PPP that is experiencing significant cost overruns because of design flaws (Gilbert and Tobin 2020).

To address this problem, best practices prescribe the adoption of a coherent process for the allocation of risk (Meng et al. 2015; Telang & Kutumbale 2014). The literature outlines some principles for allocating risk such as, firstly, risk should preferably be allocated before the start of a project (Taruvinga 2017). Secondly, it should be allocated to the party best able to control the likelihood of the risk occurring (Taruvinga 2017). For example, the private party typically bears the technical expertise required for construction; therefore, any delays relating to construction should be carried by this party (Taruvinga 2017). Thirdly, the party best able to control the impact of the risk on project outcomes should also be considered when allocating risk (Cruz, Marques & Franco 2015). For instance, the private party can mitigate the risk posed by earthquakes to a construction project through the use of innovation, design and technology (Cruz et al. 2015). Fourthly, risk should be allocated to the party that can absorb it at the lowest cost, if the likelihood and impact cannot be controlled (Tiong 2013). Typically, governments can absorb risk better than private parties, as they can spread risk to several taxpayers compared with the private party, which would have to spread their risk to a few shareholders (Tiong 2013).

It appears that all the BRICS countries typically allocate risk to the party best suited to deal with it (Churakov 2014; Meng et al. 2015; National Treasury 2017; Pereira 2014; Telang & Kutumbale 2014). In all these countries, there seems to be an adequate transfer of risk to the private party (Churakov 2014; Meng et al. 2015; National Treasury 2017; Pereira 2014; Telang & Kutumbale 2014). However, in specific cases, the public sector seems to carry most of the risk, as is demonstrated by the Gautrain Rapid Rail project in South Africa, where the public sector carries most of the financial risk (Dachs 2011; National Treasury 2017).

Best practices also recommend the development of appropriate instruments for the financing of PPP projects (Ittmann 2017; Tiong 2013). This includes developing long-term financing instruments to allow payments for PPPs to become affordable (IBRD/WB 2017). Except for South Africa, the BRICS countries have well-established long-term financing instruments (Beck, Maimbo, Faye & Triki 2011; Churakov 2014; Meng et al. 2015; Pereira 2014; Telang & Kutumbale 2014). Project bond financing is an example of a long-term financing instrument (Deloitte 2018). It is not prevalent in South Africa, as is demonstrated by the limited investment-grade listings on the Johannesburg Stock Exchange; however, it is expected to play a greater role in the future (Deloitte 2018).

Tiong (2013) also prescribed the establishment of regional rating agencies as part of a country's strategy to promote PPPs. China, Russia and India have established regional rating agencies (Tiong 2013). Although Brazil and South Africa do not have regional rating agencies, they do have international credit rating agencies represented within their borders (Tiong 2013). The Africa Report (2014) shows the establishment of a domestic credit rating agency is important for the growth of Africa's capital markets and investment in the continent. Such an agency could provide alternative, in-depth analysis into 'transactions and balance-sheet activities of entities across the region' (Africa Report 2014: para. 1). By providing better information on entities operating within the region, the fears of investors could be allayed (Africa Report 2014).

The creation of a competitive environment for PPP projects is encouraged by best practice (Ittmann 2017; Tiong 2013). The literature indicates that competition in the PPP market is

encouraged across all the BRICS countries, albeit at differing levels (Churakov 2014; Lukmanova & Mishlanova 2015; Meng et al. 2015; National Treasury 2017; Pereira 2014; Telang & Kutumbale 2014). It suggests that there is robust competition in their PPP markets (Churakov 2014; Meng et al. 2015; Pereira 2014; Telang & Kutumbale 2014). This is an important aspect, as according to Meng et al. (2015), competition drives efficiencies within the PPP market. All the BRICS countries have measures to deal with unsolicited proposals and intellectual property (Churakov 2014; Lukmanova & Mishlanova 2015; Meng et al. 2015; National Treasury 2017; Pereira 2014; Telang & Kutumbale 2014; Thieriot & Dominguez 2015). Although South Africa's regulatory framework allows for unsolicited proposals, it seems as though there is reluctance to approve projects through this form of procurement, as it is not deemed to be cost effective (National Treasury 2017).

Best practices recommend outlining a coherent procedure for the management of the transaction process of PPP projects (Bloomfield & Ahern 2011; IBRD/WB 2014; Iossa & Martimort 2012). The appointment of transaction advisors is a common commercial practice in all the BRICS countries (Bloomfield & Ahern 2011; IBRD/WB 2014; Iossa & Martimort 2012). The bid process is managed in all these countries, although at differing levels of transparency (Bloomfield & Ahern 2011; IBRD/WB 2014; Iossa & Martimort 2012).

The PPP contract design for all the BRICS countries typically includes provision for performance and dispute resolution mechanisms, payment and adjustment mechanisms, as well as provision for the termination of the contract (Bloomfield & Ahern 2011; Dachs 2011; IBRD/WB 2014; Istrate & Puentes 2011; Tiong 2013). Best practices also prescribe outlining a coherent procedure for the management of the PPP contract (Chartered Institute of Procurement and Supply n.d.). The literature shows that the practice of establishing contract management structures is recognised in all the BRICS countries by contracting authorities (Dachs 2011; IBRD/WB 2014; Istrate & Puentes 2011; Johnston & Kouzmin 2010; Tiong 2013). It is not apparent whether there is adequate monitoring and evaluation of performance in all the BRICS countries, which presents a research gap (Dachs 2011; IBRD/WB 2014; Istrate & Puentes 2011; Johnston & Kouzmin 2010; Tiong 2013). The expiry of the contract and procedures for the handover of the asset are specified in the PPP contracts of all the BRICS countries (Dachs 2011; IBRD/WB 2014; Istrate & Puentes 2011; Johnston & Kouzmin 2010; Tiong 2013). Given that no contract can ever be truly regarded as being complete, best practice prescribes outlining a strategy to deal with an incomplete contract (Mansor & Rashid 2016). In this regard, South Africa and India standardise their contracts to deal with issues emanating from an incomplete contract (Mansor & Rashid 2016). This is on the basis that standardisation prescribes the fundamental elements that need to be incorporated into any contract for it to be regarded as nearly complete as possible.

In light of the given discussion, Table 1 displays the level of conformity of the BRICS countries to best practice. It reveals that the key areas where South Africa's practices diverge from the other BRICS countries are the lack of strong political commitment and support, cooperative decision-making and trust, appropriate skills transfer and capacity development of public officials, and the establishment and identification of long-term financing instruments.

Despite having a significantly greater number of transport PPPs, the levels of conformity to best practice in India and China are comparable to Brazil and Russia, as shown in Table 1. This suggests that there might be substantial differences in the manner in which the listed practices are implemented, which are contributing to a greater uptake of transport PPPs in India and China.

Research method and design

The aim of the study was to describe the problems faced in the South African PPP process, firstly by comparing and contrasting PPP practices of South Africa with its BRICS counterparts in view of understanding the reasons for the low uptake of transport PPPs in the country, and secondly, by interviewing transport PPP experts on their opinions on constraints and possible solutions to PPPs in the country. To achieve this aim, the research design and plan was descriptive and exploratory, and the methodological choice was qualitative research. Qualitative research was the most appropriate method, as there is limited research and experience in South Africa on transport PPPs, which presented some difficulty in collecting meaningful quantitative data. Secondary and primary data were collected and analysed, as both were required to address the research objectives. Secondary data were obtained from the World Bank's Private Participation in Infrastructure Database (WBG 2019) and the PPP database of the GTAC (2019). Primary data were collected through interviews at the participants' preferred venues, using semistructured interview guides. As the size of the population was unknown, a sampling frame was compiled through the amalgamation of data on organisations involved in transport PPPs. This information was found in the above-mentioned databases and supplemented by an Internet search.

A sample of fourteen participants was selected from this sampling frame to participate using purposive sampling. Saunders, Lewis and Thornhill (2009) stated that a small sample is ideal as data saturation is likely to be realised after the 12th in-depth interview. Data saturation refers to a point where the additional data being provided by participants becomes redundant, with no new information or insights provided (Macnee & McCabe 2008). Successive participants were interviewed until no new themes emerged (Macnee & McCabe 2008), and data saturation was considered to have been achieved. The procedure used for the interviews was face to face. It entailed the following: the preparation and pretesting of interview questions; approaching and requesting the participation of participants; the introduction of the

TABLE 1: Conformity of the BRICS countries to best practices.

Best practice	Brazil	Russia	India	China	South Africa
1. Establishment of a legal framework for PPP	√	√	√	√	√
2. Specific PPP legislation	√	√			
3. Strong political commitment and support	√	√	√	√	
4. Effective oversight by the legislature					
5. Transparency of processes and proactive disclosure of project information					
6. Extensive public participation and consultation to promote public interest	√				
7. Cooperative decision-making and trust	√	√	√	√	
8. Clear definition of institutional responsibilities and arrangements	√	√	√	√	√
9. Appropriate skills transfer and capacity development of public officials	√	√	√	√	
10. Establishment of dedicated PPP units at national and subnational levels	√	√	√	√	√
11. Appropriate project selection and pre-assessment	√	√		√	
12. An iterative approach to the screening of projects					
13. High threshold for project cost	√	√	√	√	√
14. Prioritisation of long-term projects	√	√	√	√	√
15. Preparation and approval of a viable business case	√	√		√	√
16. Allocation of risk to the party best suited to deal with it	√	√	√	√	√
17. Adequate transfer of risk to the private partner	√	√	√	√	√
18. Establishment and identification of long-term financing instruments	√	√	√	√	
19. Establishment of a regional credit rating agency that provides investors with information on positive and negative situations in the economy.		√	√	√	
20. Promotion of competition in the market	√	√	√	√	√
21. Measures for dealing with unsolicited proposals and intellectual property	√	√	√	√	√
22. Appointment of transaction advisors	√	√	√	√	√
23. Management of the bid process	√	√	√	√	√
24. Performance	√	√	√	√	√
25. Dispute resolution	√	√	√	√	√
26. Specification of payment and adjustment mechanisms	√	√	√	√	√
27. Provision for contract termination	√	√	√	√	√
28. Establishment of contract management structures	√	√	√	√	√
29. Adequate monitoring and evaluation of performance					
30. Expiry of the contract and handover of the asset	√	√	√	√	√
31. Standardisation of contracts			√		√
Total	**26**	**25**	**23**	**24**	**19**

PPP, public–private partnership; BRICS, Brazil, Russia, India, China and South Africa.

interview; indicating the length of the interview; the assurance of confidentiality; recording the interview; and closing the interview (Food and Agriculture Organisation of the United Nations 2019). The transcribed interviews were then amalgamated using Microsoft Word and uploaded to ATLAS.ti for coding and development of themes. The findings were then analysed and described and conclusions drawn.

Findings and discussion

This section provides the results of the study that address the specific objectives and a discussion to reveal new insights. Section 'Trends in the Public–Private Partnership practices of the BRICS countries' presents results from the secondary data analysis, and Section 'Transport industry players' perspectives' presents the results from the interview process.

Trends in the public–private partnership practices of the BRICS countries

The secondary data findings reveal that transport PPPs in the BRICS countries mainly involve brownfield projects, which are used to transfer the responsibility for upgrading and managing existing assets to private parties (Pan n.d.). Brownfield projects are ideal for PPPs because they can take longer to develop and carry greater risk than greenfield projects (Gray n.d.). These aspects provide an opportunity for long-term contracts that afford stability and predictability (Tan & Zhao 2019) and the ability of the private party to benefit by charging a premium for most of the risk transferred to it (Marquaire 2020).

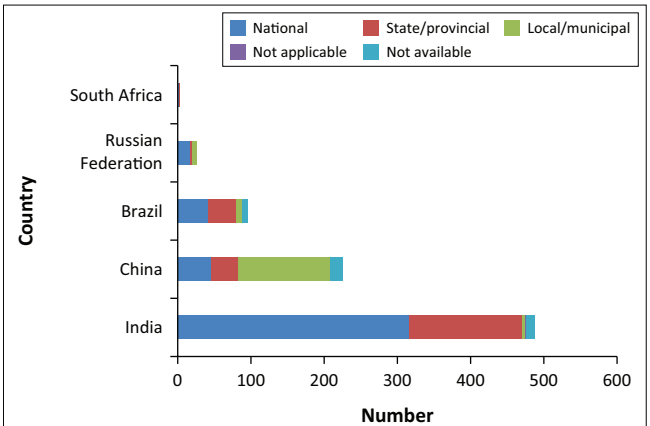
The findings also show that the transport PPPs of the BRICS countries are predominately in the road sector, entailing the building, rehabilitating, operation and transfer of highways. This finding is confirmed by Rehman (2013) and Sanghai (2021), who showed that long-term finance for PPP projects is not readily available for project companies in India intending to develop greenfield infrastructure projects, which are new developments that have greater flexibility to introduce new technologies and ideas without concern for existing technologies, infrastructure and systems found in brownfield projects (Pan n.d.). The typical sources of long-term finance, such as insurance companies and pension funds, do not finance these types of projects (Rehman 2013). Therefore, the lack of long-term finance for greenfield projects would discourage investment in this type of project in this country. However, China contradicts this finding, as it has a greater affinity for greenfield projects. This finding is evidenced by Thieriot and Dominguez (2015), who stated that in China 'greenfield projects represent a majority of the

private participation in infrastructure, mostly through build–operate–transfer agreements'. The prevalence of road projects is verified by Palmer (2015) and Wheat et al. (2019), who show that there is a greater demand for road projects compared with other modes, such as rail, which is attributed to lower traffic risk and greater affordability (Wheat et al. 2019; Withrington 2011).

The findings also reveal a trend for the establishment of legal frameworks in each of the BRICS countries, which are characterised by the autonomy of different tiers of government to enter into a contract, as is evidenced by Churakov (2014), Pereira (2014), Telang and Kutumbale (2014), Meng et al. (2015) and Ittmann (2017). The literature also reveals that Brazil (Pereira 2014), South Africa (Ittmann 2017) and Russia (Polyakova & Vasilyeva 2016) have the authority to grant contracts across different levels of government. For these countries, the granting of contracts is predominantly realised at the national as well as the provincial tiers (Public Private Infrastructure Advisory Facility 2017). This trend is attributed to the establishment of PPP units, which are recognised for their contribution to the development of contracting capacity, at the higher echelons of governments of these countries (Istrate & Puentes 2011). As a result, there is greater capacity to contract at these tiers of government.

What was not expected was China's contradiction of this trend, as the data show that this country realised the greatest uptake of contracts at the municipal or local level of its government, despite having located its PPP unit at the national tier. This finding is confirmed by Guo, Martek and Chuan (2019:2), who indicated that 'more than 90% of PPP projects were initiated by local governments in China'. The prevalence of PPPs at the local level is attributed to the introduction of a policy titled 'Opinions on strengthening the management of local government debt', which allowed for meaningful private sector participation in urban infrastructure through franchise and other options (Guo et al. 2019).

Figure 2 displays the frequency distribution of data categorised under a government granting contract. Of these countries, India granted the most contracts, followed by China, Brazil, Russia and then South Africa. Between them, the Asian economies of India and China accounted for most of the contracts. Further inspection also indicates that most of these countries have granted contracts across all three levels of their respective governments (i.e. national, state or provincial and local or municipal). The exception is South Africa, which has not granted any contract at the municipal or local level (National Treasury 2017). It has only granted one contract at the national level for the Beitbridge Border Post bridge and two contracts at the state or provincial levels for the Gautrain Rapid Rail Project and the Durban Passenger Terminal, operated by MSC Cruises (GTAC 2019; WBG 2019). It is also evident that most BRICS countries predominantly granted contracts at the national or provincial tier of their governments. The exception is China, which granted contracts mainly at the local or municipal level of its government.



	India	China	Brazil	Russian Federation	South Africa
National	316	46	41	17	2
State/Provincial	154	37	39	3	1
Local/Municipal	5	125	8	6	
Not Applicable	1		1		
Not Available	11	17	7		

FIGURE 2: Frequency distribution of government granting contracts.

The findings also revealed that, although in some instances the BRICS governments receive unsolicited proposals, contracts are predominantly awarded through a competitive bidding process, which emanates from solicited proposals (National Treasury 2017), where less than six bids are usually received, as is evidenced by Jones and Bloomfield (2020). For example, they indicate that although the data of the number of bidders in China has not been disclosed, the number of bidders will be low as the level of competitive tendering in China is limited by the regulations. In South Africa, competition is also prioritised as it is deemed to be cost effective (National Treasury 2017). The dominance of competitive bidding is attributed to the benefits that the public sector derives from the competition, such as value for money and innovation (Arata, Petrangeli & Longo 2016; National Treasury 2017).

The most prevalent contract periods have a span of between 11 and 30 years and revenue is largely generated through user fees. The prioritisation of long-term contracts is not surprising as Barr (2020: para. 3) stated that 'concrete roads offer an expected service life of roughly 20–25 years, whilst asphalt roads are likely to last approximately 18 years.' Therefore, there is a need for contracts to provide a project term that is long enough to capture key lifecycle costs and enable lenders to provide the maximum term on debt repayments (APM Group 2020). The results also show that, in some instances, the public sector supplements this revenue through fixed or variable annuity or availability payments as is evidenced by Thillai, Deep and Mangu (2018).

Disclosure of PPP information is often regarded as problematic, and to this end, the World Bank, through a global review of disclosure frameworks, identified five reports that would provide a holistic approach to disclosure

(WBG 2016). It indicates that literature is limited on policy and practice in PPP disclosure, and it has therefore developed these reports as part of a broad framework to address this gap (WBG 2016). The WBG (2013) identifies these five reports as:

> [1] [*T*]he disclosure of the current PPP contract (identifying any changes made since the contract was originally signed) and relevant side agreements, including government guarantees, with minimal redactions, which reflect commercially confidential information; [2] the disclosure of future stream of payments and government commitments under PPP contracts; [3] the publication of a summary which provides in plain language the most important elements of the contract and project and key information on the rationalisation of the project, selection as a PPP and procurement; [4] information regularly on the performance of the project; and [5] a process by which information is authenticated/validated. (p. 10)

The findings also show that the proactive disclosure of information to the public is limited, as none of the prescribed reports are readily available or published by authorities. This trend is verified by the WBG (2013), which shows that neither Brazil, India nor South Africa made any of the five reports required for proactive public disclosure of information available to the public. In Brazil, neither performance nor audit reports are proactively disclosed, nor are summaries of the projects and contract information provided (WBG 2013). In India, performance reports are disclosed reactively, whilst summaries of project and contract information are not provided (WBG 2013). In South Africa, contract information and audit reports are disclosed reactively, as interested parties need to apply to authorities for the limited contract information using the *Promotion of Access to Information Act* 2 of 2000 (IBRD/WB 2014). This process does not guarantee that the required information will be received in whole or in part, and it might come at a cost (IBRD/WB 2014). Marques (2018) attributed the lack of transparency to the perceived sensitivity of the protection of intellectual property. Some proponents of PPPs claim that this form of procurement encourages the use of new technologies that are usually proprietary to the private sector (IBRD/WB 2017). As a result, governments are reluctant to proactively disclose any contractual information that could compromise commercial secrecy and lead to costly litigation by the private sector (IBRD/WB 2017). However, Marques (2018) indicated that this claim is seldom valid as alternatives are usually available.

Transport industry players' perspectives

To supplement the findings of the secondary data, transport experts who had experience with PPP processes in South Africa, were interviewed. Table 2 displays the profile of the interview participants. It indicates that all of the participants had more than 7 years of work experience in the transport sector and were qualified in fields related to engineering, economics and finance. Furthermore, most of the participants indicated that they held qualifications in a broad range of fields. Of the 14 participants, eight were associated with the public sector and six with the private sector. Based on their experience, the 14 participants who were chosen represented the assortment of organisations in the typical PPP structure as outlined by Delmon (2017), which includes public authorities; special purpose vehicles; lenders; equity investors; engineering, procurement and construction contractors and subcontractors; operations and maintenance contractors; and insurers.

Reasons for the low uptake of transport public–private partnerships in South Africa

The participants were requested to provide reasons why they believed there was a low uptake of PPPs in South Africa. The findings reveal the main view amongst the participants is the politicisation of infrastructure through party politics, political risk and the dominance of the state in the delivery of strategic infrastructure and assets, as confirmed by Participant 1. He felt that the uptake of transport PPPs was impeded by the pursuit of party political agendas to the detriment of projects that are in the public interest. He mentioned, as an example, the irrationality of the decision of politicians to forego the proposed De Beers Pass toll road concession, which would have provided a viable alternative route to the country's busiest port in Durban. Participant 6 was of the view that the political

TABLE 2: Profile of interview participants.

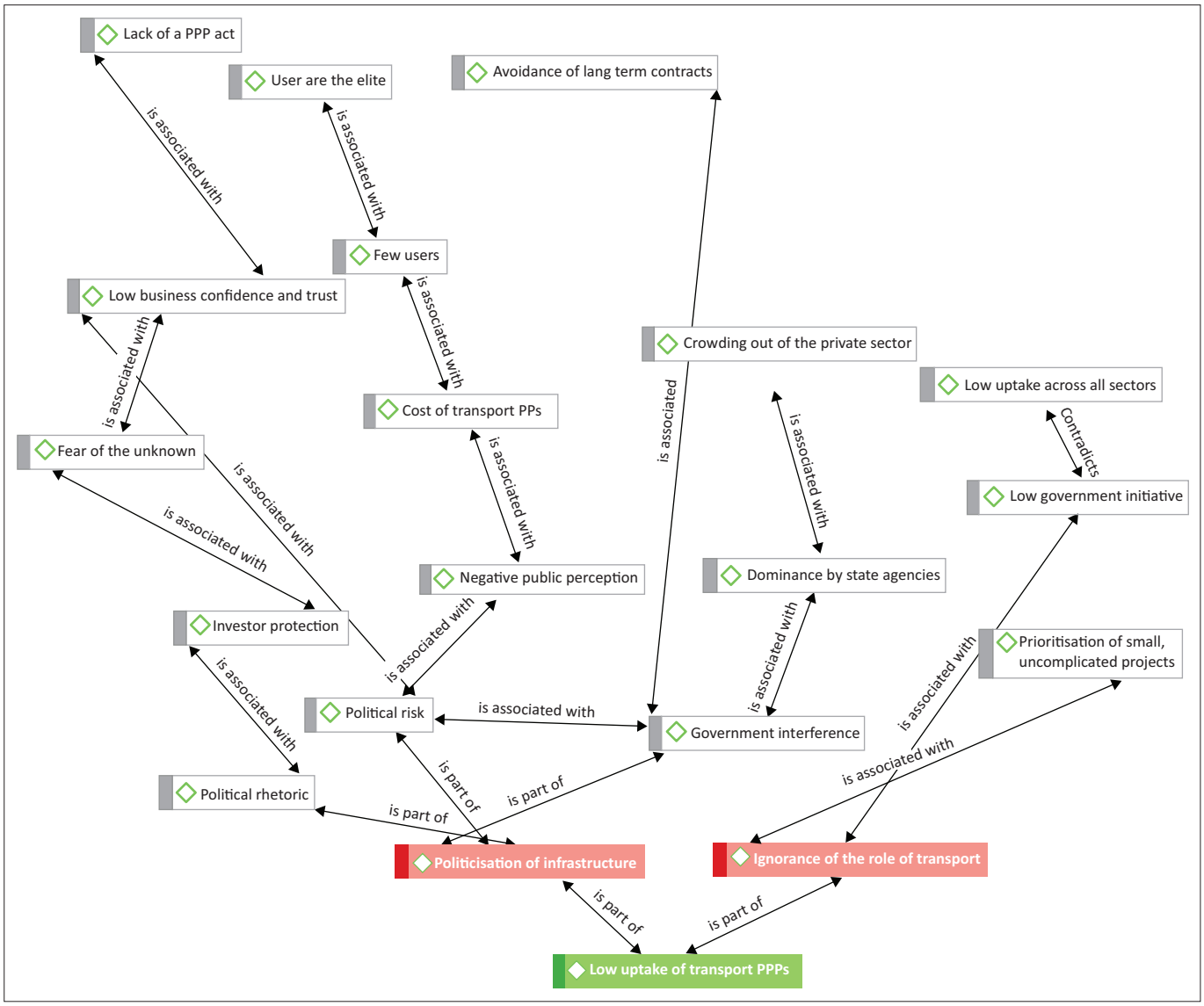
Participant number	Gender	Type of organisation	Experience in industry (years)	Level in organisation	Highest qualification	Study area
Participant 1	Male	State-owned engineering company	40 years	Senior management	Bachelor of Science	Civil Engineering
Participant 2	Male	State-owned rail company	10 years	Senior management	Bachelor of Commerce (Honours)	Transport Economics
Participant 3	Male	State-owned airport development company	15 years	Senior management	Diploma	Transport Management
Participant 4	Female	State Department	21 years	Senior management	Bachelor of Administration	Airline Management
Participant 5	Male	State Department	11 years	Senior management	Bachelor of Administration	Public Management
Participant 6	Male	State-owned logistics company	22 years	Senior management	Bachelor of Commerce (Honours)	Transport Economics
Participant 7	Male	Development Finance Institution	9 years	Senior management	Master of Commerce	Financial Management Sciences
Participant 8	Male	Engineering firm	15 years	Senior management	Master of Commerce	Development Economics
Participant 9	Male	Engineering firm	10 years	Senior management	Bachelor of Science	Quantity Surveying
Participant 10	Male	Engineering firm	38 years	Senior management	Bachelor of Science	Electrical Engineering
Participant 11	Female	Airline	4 years	Senior management	Master of Business Administration	Management
Participant 12	Male	Engineering firm	25 years	Senior management	Bachelor of Education	Mathematics
Participant 13	Male	State-owned airline	18 years	Senior management	Bachelor of Commerce (Honours)	Transport Economics
Participant 14	Male	Airline	7 years	Senior management	Bachelor of Commerce (Honours)	Management Sciences

rhetoric on 'radical economic transformation and white monopoly' had also harmed business confidence and trust, discouraging investment in PPPs. This finding was endorsed by Participant 5, who indicated the 'private sector wants to put their resources where they are going to be sure they are going to receive their return'. Participant 11 thought 'the fear of the unknown from the public sector' and the private sector's 'perception when it comes to the public sector' have created this trust deficit between the two. Furthermore, Participant 13 affirmed the lack of trust between the two sectors and its impact on business confidence, as demonstrated by the 'very low business confidence throughout the period under review'. He also stated that 'the private sector would not want to partner with somebody that they did not trust'. Participant 10 indicated the lack of a *PPP Act* that could address the complexities and ambiguities associated with a broad regulatory framework that spans multiple policy instruments, which had undermined business confidence, resulting in a lack of uptake. These findings pinpoint a major cause of the low uptake amidst the possible reasons outlined in the literature. As a result, greater focus and effort can be directed to resolving this issue, leading to greater uptake.

Figure 3 displays a network diagram of the reasons for the low uptake of transport PPPs. Some of the responses showed that a few of the participants suggested the low uptake to be the result of ignorance of policymakers on the role of transport in the economy. This ignorance is linked to low initiative and uptake across all sectors, which results in small, uncomplicated projects being prioritised for implementation.

Requirement for a specific law for public–private partnership

The participants were further requested to provide opinions on whether they felt a specific law for PPP was required. The results show that participants felt the introduction of a *PPP Act* can contribute positively to addressing over-regulation, thereby attracting investment as confirmed by Participant 10. He felt a specific law would 'ring-fence



PPP, public–private partnership.

FIGURE 3: Network diagram of the reasons for the low uptake of transport public–private partnerships.

the process', decoupling it from an amorphous application process. Participant 6 thought that this would lead to the easing of the regulation of PPPs, as the current regulatory framework was 'a bit too stringent'. Participant 4 felt it would result in a faster approval process for PPPs by providing 'guidance on how to actually undertake that particular process, without relying just on policymakers'. Participant 14 also believed that a specific law would provide an opportunity to focus regulations on activities that improve implementation by 'supporting private sector participation'. Participant 3 was of the view that the introduction of a PPP Act would also contribute to promoting the inclusivity of marginalised communities by improving transparency in areas relating to the tariff structure. He felt the lack of regulation on how information was communicated made it possible for society to be misled. For example, he felt communication on aspects such as the determination of tariff structure for some of these projects 'is not entirely true', which could impede access to 'infrastructure that is open for all citizens and not only for those who can afford'. Participant 2 also thought this law would 'provide the certainty that is required by the private partners before they can commit'. He felt certainty would be brought about by knowing upfront the implications of the policy. Participant 8 thought a *PPP Act* would improve the collection of revenue as users would know that it was illegal not to pay. He stated 'people will not be in a position to not pay'.

Another view that emerged was that a *PPP Act* was not required, and the existing regulatory framework needed to be kept or amended, as it was not inhibitive and could rather be improved to enable a more seamless private sector participation. This finding was confirmed by Participant 1, who stated, 'I don't find the regulations inhibiting at all, as long as you do the work that we have to do'. He felt the regulations were not necessarily a problem, but the 'extremely low skills in South Africa [*are*], as far as PPPs are concerned'. Participant 9 also thought a PPP Act was not necessary; he stated that 'just enabling policies that provide better incentives and access to the private sector' would be sufficient.

What was not expected was the view of Participant 11, who felt that instead of a single law for all PPPs, the state should introduce sector-specific laws, as he commented that there was a requirement for 'legislation per sector'. He stated that legislation needed to indicate 'how a sector should deal with it' to address its specific circumstances. This finding augurs well with the tourism sector's practice, which has its own PPP toolkit as 'the PPP manual and Standardised PPP Provisions cannot, however, be summarily applied to tourism PPP projects' (National Treasury 2015:1). Differentiated regulations for other sectors would assist the public and private sectors to enter into sector-specific PPPs by taking into consideration the special conditions in that sector (National Treasury 2015). For example, in the tourism sector there are special conditions such as:

> [… *C*] ircumstances involving communal land, or private land, which is under state conservation management, over which conservation institutions have acquired explicit commercial rights which they seek to exercise via a PPP. (National Treasury 2015:4)

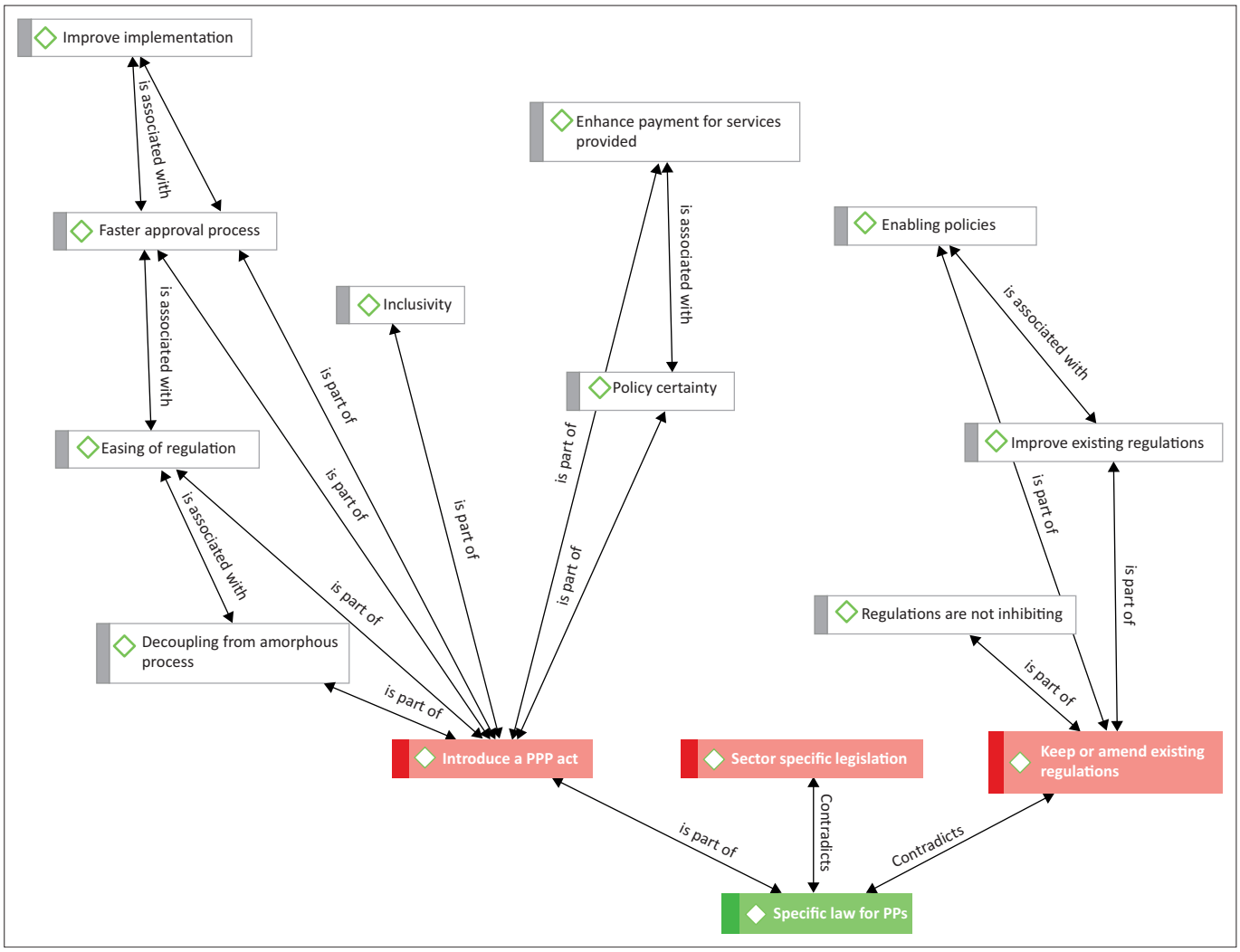
In light of the findings that a specific law that would facilitate the PPP process could add value by decoupling the amorphous application process, a conclusion could be drawn that the need is not necessarily for an act but rather for an act that facilitates the PPP process. This is evidenced by Wei, Wenjuan and Xu (2015) and Arimoro (2018), who indicated that specific regulatory frameworks have contributed to the success of PPPs in some countries. A comparison of the BRICS countries shows that some of them have a specific *PPP Act*, such as Brazil, whilst some (like India and China) do not. This finding is important as it also suggests that a specific PPP Act in itself is not important, but the ability of the legal framework to facilitate the PPP process in an effective manner is.

Figure 4 displays the network diagram of responses on the need for a specific law for PPPs and the value it would add. It demonstrates that participants felt the introduction of a PPP Act would add value by decoupling the amorphous application process; easing regulation; improving the turnaround time of the approval processes; enhancing implementation, inclusivity and policy certainty; and ensuring the payment of services provided.

Public consultation and participation

This study also reveals that there is a dominant view amongst participants on a lack of extensive public consultation and participation. These findings are confirmed by Participant 7, who stated 'the public did not participate in the consultation at the time when they were needed to participate'. He asserted that the public only develops an interest closer to the implementation of the projects, when they become aware of how they are going to be affected. Participant 1 also indicated that although the *South African National Roads Agency limited (SANRAL) Act* and environmental impact assessment requirements make public participation compulsory in the road sector, they 'can't force people to come to the meetings'. However, he indicated that this did not mean that consultation did not happen, as demonstrated by the findings of the Constitutional Court, which expressed that 'we had done what we needed to do'. Participant 3 felt 'only the privileged and elite' participated because they have access to information and technology. He felt disadvantaged members of society are disenfranchised by the lack of information. As a result, there was a lack of 'societal wide participation'.

Participant 14 thought that the 'public consultation process isn't very advanced compared with other countries'. This subjects the consultative process to several influences that can distort the outcome of the discussions. This finding was confirmed by Participant 1, who felt 'local municipalities don't have capacity to be able to engage with you' where toll roads have to go. As a result, there were no meaningful exchanges or engagements, even though it is mandatory to consult. He also felt the lack of capacity to engage meaningfully



PPP, public–private partnership.

FIGURE 4: Network diagram of responses on the need for a specific law for public–private partnerships.

was also a problem at the provincial level. Participant 13 was of the view that 'the National Treasury is not doing enough in socialising the idea of PPPs'. He felt the mandate on PPPs 'had to move from Treasury' to another ministry such as the Department of Public Enterprises, which 'would be a fitting ministry to look after PPPs'. Participant 10 indicated that there is 'complete mistrust' of the consultation process. He felt that even before the process is undertaken, there was a sense of who would be the successful bidder. This finding was endorsed by Participant 9, who thought 'public consultation tends to be politically driven'. As a result, the effectiveness of participation was limited.

Contrary to most of the participants' views, Participant 6 thought there was extensive public consultation and participation. He attributed his thoughts to the success of the Gautrain Rapid Rail Project, which he felt 'was done well'. Participant 5 also felt 'government is trying really a lot in terms of public consultations', based on the 'imbizos that the different departments will undertake with their constituencies'. An imbizo refers to an official gathering between the state and the public, where members of the executive interact closely with the public (Government of South Africa 2020).

Based on the findings, it could be concluded that there is a lack of extensive public consultation and participation. These findings are evidenced by Aigbavboa et al. (2014), who suggested that South Africa does not seem to be conducting extensive public participation and consultation to promote the public interest.

Figure 5 depicts the network diagram of the responses of the public consultation and their participation. It shows that participants felt that the lack of consultation and participation emanates from low public interest, the inability to force people to participate and an interest only by the privileged and elite. It also showed that the participants felt the consultation processes are unsophisticated, as there was a lack of a guiding methodology to the process, the local government had limited capacity to engage and the National Treasury was not doing enough to generate awareness. Furthermore, there was complete distrust of this process, and it was seen as being politically driven. It also showed that two participants did not share the view that there was not extensive public consultation, as demonstrated by the success of the Gautrain project and the imbizos that are held by the government.

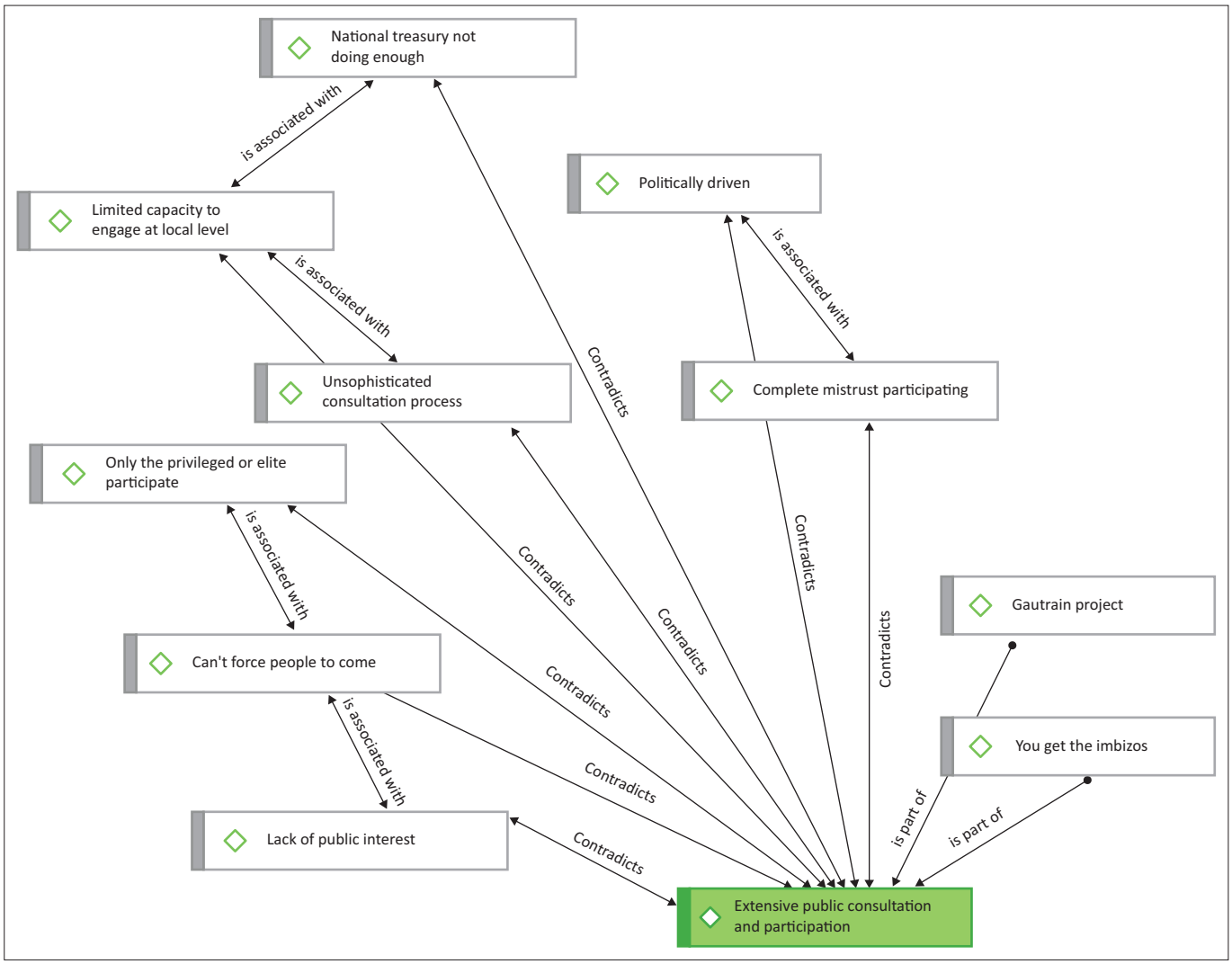


FIGURE 5: Network diagram of responses to public consultation.

Measures to improve the uptake of transport public–private partnerships in South Africa

Other areas that were highlighted by the participants that could improve the uptake of transport PPPs in South Africa include enhancing the skills of public officials. To this end, participants felt that training can be promoted as a measure to improve the capacity of officials to deliver on projects. They were of the view that capacity can be developed through approaches such as an international exchange programme with the BRICS countries and a skills transfer programme by the private sector. Participants also thought the proactive disclosure of the project and contract information was required to promote good governance. This finding is confirmed by Wei et al. (2015), who indicated that proactive disclosure is important for good governance. Furthermore, the establishment of PPP units at subnational levels is required to improve capacity throughout the state (i.e. both provincial and municipal). This finding is evidenced by Ittmann (2017), who suggested that the establishment of PPP units at a subnational level could result in the proliferation of PPPs in the transport sector.

Participants also felt that a regional credit rating agency needs to be established, as it would be influential over the decision of investors to finance PPPs in the country and the rest of the region. This finding is confirmed by the Africa Report (2014), which stated that the establishment of a regional rating agency would contribute towards alleviating the fears of investors by providing in-depth information on entities operating across the region. The number of competitors in the PPP market is also largely perceived to be inadequate. It is not apparent from the literature how robust the level of competition is in the South African PPP market (Aigbavboa et al. 2014; Makofane 2013; National Treasury 2017). This is evidenced by the PPP database of the GTAC, which only highlights the successful bidder (GTAC 2019). The participants felt that the lack of competition and participation could be addressed through advocacy of the benefits of PPPs to all industry role players, and this would encourage competitive bidding.

Conclusion

The findings from the secondary data show that there is a need to strengthen political commitment and support for PPPs by centralising and coordinating planning efforts for PPPs across the different tiers of government in view of improving state capacity and identifying projects with the

greatest probability of success. The primary data indicate a need for easing the regulatory burden associated with PPPs to make them simpler to implement and attractive for private sector involvement by promoting inclusivity, policy certainty and the payment of services provided.

Notwithstanding the limitations of the study, such as the use of a small sample based on limited PPP application in South Africa's transport sector, the research provides a description of the problems with transport PPPs in the country. It can also serve as a basis for future research. Policymakers can utilise these results to strengthen political support and commitment to transport PPPs by translating rhetoric into actionable plans. Transport PPPs should also appear more prominently in the budgets and plans of the different tiers of government. Furthermore, policies for private sector access and the knowledge of officials on public processes required for establishing PPP projects need to be improved. To address the regulatory burden, the introduction of a PPP Act or an act that facilitates the process could also be beneficial by addressing the inadequacies of the current regulatory framework (which comprises the PFMA and other legislation), making compliance simpler and promoting innovation and inclusivity. Public participation can be strengthened through social facilitation efforts. To address the trust deficit that exists between the public and private sectors, greater levels of trust need to be fostered to allay suspicions they have of each other's motives. This trust would be achieved by promoting greater transparency of processes and decision-making to assure investors that decisions are honest. Stanley and David (2008) also show that lessons from contracting route bus services in Melbourne indicate that trust can be fostered by extending key performance indicators beyond the private party to include the public sector authority and spread performance pressure to both parties in order to highlight the interdependence of a true partnership. The foundation for trust should also be developed at a precontractual phase to encourage transparency and accountability (Stanley & David 2008).

Proactive disclosure of project information can help in this regard. The establishment of a regional credit rating agency could also attract greater investment if implemented in an unbiased manner. Competition can also be encouraged by increasing the number of available projects. This could be achieved by:

> [… *P*]utting in place a strong pipeline of smaller PPP projects under 'framework' type agreements that streamline processes and reduce bid costs in sectors with a high number of PPP projects. (KPMG 2010:45)

Preferential procurement could be considered to introduce new local players by subcontracting a percentage of contracts to smaller companies whilst facilitating appropriate skills transfer. Future research on the mitigation of political risk in large infrastructure projects could also prove useful in improving private sector participation.

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Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

O.K.S. was responsible for conceptualising and writing the research report. T.M. was the research supervisor and R.L. was the co-supervisor.

Ethical considerations

Ethical clearance was granted for the study by the Departmental Ethics Committee of the Department of Transport and Supply Chain Management, University of Johannesburg (ref. no. 2019TSCM-0004MA).

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Data availability

Secondary data were obtained from the following websites: https://ppi.worldbank.org/en/ppi and https://www.gtac.gov.za/tenders/ppp-tenders/

Disclaimer

The views and opinions expressed are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

References

Agarchand, N. & Laishram, B., 2017, 'Sustainable infrastructure development challenges through PPP procurement process', *International Journal of Managing Projects in Business* 10(3), 642–662. https://doi.org/10.1108/IJMPB-10-2016-0078

Aigbavboa, C.O., Liphadzi, M. & Thwala, W.D., 2014, 'An exploration of public private partnership in infrastructure development in South Africa', in S. Laryea & E. Ibem (eds.), *Proceedings 8th construction industry development board* (CIDB) *postgraduate conference*, 10–11 February 2014, pp. 101–109, University of the Witwatersrand, Johannesburg, viewed 15 April 2018, from http://hdl.handle.net/10210/12044.

APM Group, 2020, *Term definition*, viewed 10 July 2020, from https://ppp-certification.com/ppp-certification-guide/41-term-definition.

Arata, M., Petrangeli, M. & Longo, F., 2016, 'Innovative approaches to implement road infrastructure concession through Public-Private Partnership (PPP) initiatives: A case study', *Transportation Research Procedia* 14, 343–352. https://doi.org/10.1016/j.trpro.2016.05.086

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

Barr, M., 2020, *The long and short of it: Lifespans of paved roadways*, viewed 26 July 2020, from https://www.ayresassociates.com/the-long-and-short-of-it-lifespans-of-paved-roadways/.

Beck, T., Mainmbo, S., Faye, I. & Triki, T., 2011, *Financing Africa: Through the crisis and beyond*, World Bank, Washington, DC.

Beerbohm, M. & Fitzgerald, E., 2019, Feasibility study and business plan: Learn how to present a completed feasibility study, Independently published.

Bloomfield, P. & Ahern, D., 2011, 'Long-term infrastructure projects: Contracting risks and risk-reduction strategies', *State & Local Government Review* 43(1), 49–59. https://doi.org/10.1177/0160323X11400435

Cambridge University Press, 2017, *Cambridge advanced learner's dictionary & thesaurus, definition of best practice by the online dictionary*, viewed 07 May 2018, from http://dictionary.cambridge.org/dictionary/english/best-practice.

Chartered Institute of Procurement and Supply, n.d., *Contract management cycle*, viewed 18 February 2019, from https://www.cips.org/en-ZA/knowledge/contract-management-cycle/.

Churakov, R., 2014, 'Trends: How Russian PPP are changing', International Financial Law Review, p. 52, viewed 04 August 2018, from https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=bsu&AN=96676978&site=ehost-live&scope=site.

Cruz, C., Marques, R. & Franco, D., 2015, 'Road-network development in quickly growing economies: Brazilian case study MG-050', *Journal of Infrastructure Systems* 21(4), 1–7. https://doi.org/10.1061/(ASCE)IS.1943-555X.0000254

Dachs, W., 2011, 'Gautrain: Public money in a private deal', Presentation at the IFC PPP conference held at Lagos in Nigeria on November 2011, Midrand: Gautrain management Agency, viewed 23 May 2019, from https://www.ifc.org/wps/wcm/connect/48abc6b0-f584-41fe-9d23-4e2c7bf830d5/3.1_Public+Money%2C+Private+Deals+-+Public+Sector+Financing+Trends+-+Gautrain+-+William+Dachs.pdf?MOD=AJPERES&CVID=jgq3.Bl.

Deloitte, 2018, *Project bonds: An alternative source of financing infrastructure projects*, Deloitte, Johannesburg, viewed 25 September 2018, from https://www2.deloitte.com/za/en/pages/finance/articles/project-bonds-an-alternative-to-financing-infrastructure-projects.html.

Delmon, J., 2017, *Public-private partnerships in infrastructure: An essential guide for policy makers*, 2nd edn., Cambridge University Press, New York, NY.

Department of Economic Affairs, 2010, *Developing toolkits for improving public private partnership decision making processes*, viewed 09 June 2022, from https://www.pppinindia.gov.in/toolkit/pdf/ppp_toolkit_user_guide.pdf.

Food and Agriculture Organisation of the United Nations, 2019, *Chapter 5: Personal interviews*, viewed 20 August 2019, from http://www.fao.org/3/w3241e/w3241e06.html.

Gilbert and Tobin, 2020, *Are public private partnerships (PPP) dead?*, viewed 21 June 2022, from https://www.gtlaw.com.au/insights/are-public-private-partnerships-ppps-dead.

Global Infrastructure Hub, 2016, *Allocating risks in public-private partnership contracts*, viewed 05 July 2020, from https://library.pppknowledgelab.org/documents/3523/download.

Gopalkrishna, N. & Karnam, G., 2015, 'Performance analysis of national highways public private partnerships in India', *Public Works Management & Policy* 20(3), 264–285. https://doi.org/10.1177/1087724X14558270

Government of South Africa, 2020, *National Imbizo focus week*, Government of South Africa, Pretoria, viewed 29 August 2020, from https://www.gov.za/national-imbizo-focus-week.

Government Technical Advisory Centre (GTAC), 2016, *Projects*, Database of closed and active PPP projects, viewed 15 October 2018, from https://www.gtac.gov.za/Pages/Project.aspx?Paged=TRUE&p_Government_x0020_System=Public%20Entities&p_ID=31&PageFirstRow=61&&View={D5EEF9F3-113A-4787-9CE0-4920C07BE6B7}.

Government Technical Advisory Centre (GTAC), 2019, *Projects in preparation, registered in terms of Treasury Regulation 16 and municipal projects registered under the MFMA and MSA as at May 2019,* viewed 09 October 2019, from https://www.gtac.gov.za/Publications/Project%20List%20for%20the%20PPP%20Quarterly%20May%202019.pdf.

Gray, n.d., *Greenfield vs. brownfield: What's better for your manufacturing facility, Gray*, Lexington, viewed 22 July 2022, from http://gray.com/insights/greenfield-vs-brownfield-whats-better-for-your-manufacturing-facility/.

Guo, G., Martek, I. & Chuan, C., 2019, 'Policy evolution in the Chinese PPP market: The shifting strategies of governmental support measures', *Sustainability* 11(18), 1–24. https://doi.org/10.3390/su11184872

International Bank for Reconstruction and Development/The World Bank (IBRD/WB), 2014, *Public-private partnerships: Reference guide, Version 2.0*, World Bank Publications, Washington, DC.

International Bank for Reconstruction and Development/The World Bank (IBRD/WB), 2017, *Public-private partnerships: Reference guide, Version 3.0*, World Bank Publications, Washington, DC.

Iossa, E. & Martimort, D., 2012, 'Risk allocation and the costs and benefits of public-private partnerships', *The RAND Journal of Economics* 43(3), 442–474. https://doi.org/10.1111/j.1756-2171.2012.00181.x

Istrate, E. & Puentes, R., 2011, *Moving forward on public private partnerships: U.S. and international experience with PPP units*, viewed 15 August 2018, from http://ppp.worldbank.org/public-private-partnership/library/moving-forward-public-private-partnerships-us-and-international-experience-ppp-units.

Ittmann, H., 2017, 'Private-public partnerships: A mechanism for freight transport infrastructure delivery?', *Journal of Transport and Supply Chain Management* 11, 13. https://doi.org/10.4102/jtscm.v11i0.262

Johnston, J. & Kouzmin, A., 2010, 'Addressing governance, accountability and performance monitoring issues in partnerships: Can "Infrastructure Australia" provide a strategic response?', *Public Administration Quarterly* 34(4), 513–551, viewed 02 April 2018, from http://www.jstor.org/stable/41288360.

Jones, L. & Bloomfield, M., 2020, 'PPP in China: Does the growth in Chinese PPP signal a liberalising economy?', *New Political Economy* 25(5), 829–847. https://doi.org/10.1080/13563467.2020.1721451

Koskela, L., Rooke, J. & Siriwardena, M., 2016, 'Evaluation of the promotion of through-life management in public private partnerships for infrastructure', *Sustainability* 8(6), 552. https://doi.org/10.3390/su8060552

KPMG, 2010, PPP procurement: Review of barriers to competition and efficiency in the procurement of PPP projects, KPMG Corporate Finance, Delaware.

Leighland, J., 2018, 'Public-private partnerships in developing countries: The emerging evidence-based critique', *The World Bank Research Observer* 33(1), 103–134. https://doi.org/10.1093/wbro/lkx008

Lodge, M., Van Stolk, C., Batistella-Machado, J., Schweppenstedde, D. & Stepanek, M., 2017, *Regulation of logistics infrastructure in Brazil*, RAND Corporation, Santa Monica, CA, viewed 09 June 2022, from https://www.rand.org/content/dam/rand/pubs/research_reports/RR1900/RR1992/RAND_RR1992.pdf.

Lukmanova, I. & Mishlanova, M., 2015, 'Determinant analysis of public–private partnerships in Russia', *International Journal of Economics and Financial Issues* 5(3), 208–216, viewed 12 May 2018, from http://www.econjournals.com/index.php/ijefi/article/viewFile/1715/pdf.

Macnee, C. & McCabe, S., 2008, *Understanding nursing research: Reading and using research in evidence-based practice,* 2nd edn., Lippincott Williams and Wilkins, London.

Makofane, T., 2013, *Public private partnership in South Africa with reference to the realization of Black economic empowerment*, University of Pretoria, Pretoria, viewed 20 November 2018, from https://repository.up.ac.za/bitstream/handle/2263/24198/Complete.pdf?sequence=10&isAllowed=y.

Mandri-Perrott, C., n.d., 'Public-private partnerships (PPP) and infrastructure financing', Presentation from the Singapore MFA Programme on PPP held from the 16–15 October 2015, Nanyang Technological University (School of Civil and Environmental Engineering), Singapore.

Mansor, N. & Rashid, K., 2016, 'Incomplete contract in Private Finance Initiative (PFI) contracts: Causes, implications and strategies', *Procedia – Social and Behavioral Sciences* 222, 93–102. https://doi.org/10.1016/j.sbspro.2016.05.193

Marquaire, J., 2020, 'Infrastructure and public private partnerships', *Doing business in Russia*, CMS International, Moscow, viewed 08 June 2022, from https://cms-law.ru/en/rus/publication/doing-business-in-russia-2020/infrastructure-and-public-private-partnerships/key-ppp-legislation.

Marques, R., 2018, 'Empirical evidence of unsolicited proposals in PPP arrangements: A comparison of Brazil, Korea and the USA', *Journal of Comparative Policy Analysis: Research and Practice* 20(5), 435–450. https://doi.org/10.1080/13876988.2017.1390866

Meng, L., Martinez, R., Zhang, J. & Pan, M., 2015, *China's new rules on concession of infrastructure projects: Welcoming private investment*, viewed 22 April 2019, from https://www.haynesboone.com/-/media/files/alert-pdfs/2015/chinasnewrulesoninfrastructurefranchising.ashx?la=en&hash=910BE64C9FFC3A81D4409F0A17123F9FDA50C3A7.

Mouraviev, N. & Kakabadse, N., 2014, 'Public–private partnerships in Russia: Dynamics contributing to an emerging policy paradigm', *Policy Studies* 35(1), 86. https://doi.org/10.1080/01442872.2013.875140

National Treasury, 2015, *2015 National budget review*, Government Printers, Pretoria.

National Treasury, 2016, *2016 Budget speech, address by the minister of finance on the 24 February 2016, South Africa,* Government Printers, Pretoria.

National Treasury, 2017, *2017 National budget review*, *South Africa*, Government Printers, Pretoria.

National Treasury, 2021, 'Public private partnerships', *2021 Budget review*, Government Printers, Pretoria, viewed 08 June 2022, from http://www.treasury.gov.za/documents/national%20budget/2021/review/Annexure%20E.pdf.

Palmer, A., 2015, 'Infrastructure: Developing for the future', Presentation held on the 12th January 2015 at the Nanyang Technological University in Singapore, Standard and Poor's Financial Services LLC, New York, NY.

Pan, R., n.d., *What is a greenfield project and what are its architectural advantages over a brownfield project?*, viewed 27 July 2020, from https://hmcarchitects.com/news/what-is-a-greenfield-project-advantages-brownfield-project-2019-04-03/.

Pereira, A.G., 2014, 'Public-private partnerships (PPP) and concessions of public services in Brazil', *BRICS Law Journal* 1(1), 25–43, viewed 04 February 2018, from http://www.google.co.za/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwjv18nO9ozZAhXPasAKHbHqCA8QFggoMAA&url=http%3A%2F%2Fwww.bricslawjournal.com%2Fjour%2Farticle%2Fdownload%2F4%2F5&usg=AOvVaw0gTtWZJi3gYhHEGU6bKP_J.

Perera, W.S.L., 2016, 'Identify current deficiencies in public private partnership practices and areas which resist PPP being an attractive investment model in infrastructure developments – Case study from Sri Lanka', *International Journal of Engineering Research and Application* 6(8), 14–20, viewed 04 May 2018, from http://ac.els-cdn.com/S1877705816342291/1-s2.0-S1877705816342291-main.pdf?_tid=9593e738-35a7-11e7-a20a-00000aab0f26&acdnat=1494438134_cdbe9da5cafe14581d11ac6e52f0980c.

Polyakova, I. & Vasilyeva, E., 2016, 'Benefits of public-and-private partnership for the creation of the infrastructure of the urbanized territories in Russia', *Procedia Engineering* 165, 1380–1387. https://doi.org/10.1016/j.proeng.2016.11.868

Public Private Infrastructure Advisory Facility, 2017, *Who sponsors infrastructure projects?: Disentangling public and private contributions*, World Bank Publications, Washington, DC.

Queiroz, C., Astesiano, G. & Serebrisky, T., 2014, *An overview of the Brazilian PPP experience from a stakeholders' viewpoint*, Inter-American Development Bank, Washington DC, viewed 08 June 2022, from https://publications.iadb.org/publications/english/document/An-Overview-of-the-Brazilian-PPP-Experience-from-a-Stakeholders-Viewpoint.pdf.

Rehman, A., 2013, *A detailed study of environmental constraints faced by public private partnership (PPP) and the road to a framework for successful implementation of PPP projects in India (with special reference to Uttar Pradesh),* viewed 28 July 2020, from https://sg.inflibnet.ac.in/bitstream/10603/50293/1/01_title.pdf.

Sanghai, S., 2021, *Can DFI be solution for long-term greenfield infra project financing?*, viewed 05 May 2022, from https://economictimes.indiatimes.com/markets/stocks/news/can-dfi-be-solution-for-long-term-greenfield-infra-project-financing/articleshow/80208627.cms.

Sanni, A.O. & Hashim, M., 2014, 'Building infrastructure through public private partnerships in sub-Saharan Africa: Lessons from South Africa', *Procedia-Social and Behavioral Sciences* 143, 133–138. https://doi.org/10.1016/j.sbspro.2014.07.374

Saunders, M., Lewis, P. & Thornhill, A., 2009, *Research methods for business students*, 5th edn., Pearson Education Limited, Essex.

Sinkala, A., Ochieng, E., Ominde, D., Zuofa, T. & Badi, S., 2021, 'Reimagining public-private partnership model as hybrid: South Africa viewpoint', *Public Works Management & Policy* 27(2), 152–183. https://doi.org/10.1177/1087724X211046626

Stanley, J. & David, A., 2008, 'Delivering trusting partnerships for route bus services: A Melbourne case study', *Transportation Research Part A: Policy and Practice* 42(10), 1295–1301. https://doi.org/10.1016/J.TRA.2008.05.006

Tan, J. & Zhao, J.Z., 2019, 'The rise of public-private partnerships in China: An effective financing approach for infrastructure investment?', *Public Administration Review* 79(4), 514–518. https://doi.org/10.1111/puar.13046

Taruvinga, T.P., 2017, *Risk allocation on public private partnership projects*, University of Johannesburg, Johannesburg, viewed 28 September 2018, from http://hdl.handle.net/10210/242418.

Telang, V. & Kutumbale, V., 2014, *Public private partnerships in India (an overview of current scenario)*, viewed 06 February 2018, from https://www.researchgate.net/publication/281024752_PUBLIC_PRIVATE_PARTNERSHIPS_IN_INDIA_An_Overview_of_Current_Scenario.

The Africa Report, 2014, *Should Africa establish its own credit ratings agency?*, viewed 10 November 2018, from https://www.theafricareport.com/3918/should-africa-establish-its-own-credit-ratings-agency/amp/.

The Presidency, 2020, *President Cyril Ramaphosa: Meeting with leaders of developmental finance institutions*, viewed 10 October 2020, from https://www.gov.za/speeches/development-finance-institutions-18-feb-2020-0000.

Thieriot, H. & Dominguez, C., 2015, *Public-private partnerships in China*, Discussion paper, International Institute for Sustainable Development, Winnipeg, viewed 04 August 2018, from http://iisd.org/sites/default/files/publications/public-private-partnerships-china.pdf.

Thillai, R., Deep, A. & Mangu, S., 2018, *Opinion: The conundrum of PPP road projects*, viewed 11 July 2020, from https://www.livemint.com/Opinion/ZfpXfkS6Q8NO45hGV26NlM/Opinion--The-conundrum-of-PPP-road-projects.html.

Thomassen, K., Vassbø, S., Solheim-Kile, E. & Lohne, J., 2016, 'Public-private partnership: Transaction costs of tendering', *Procedia Computer Science* 100, 818–825. https://doi.org/10.1016/j.procs.2016.09.230

Tiong, R., 2013, 'Public private partnerships (PPP) – Policy, regulation, legal frameworks for PPP developments', Presentation from the Singapore MFA Programme on PPP held from the 16–15 October 2013, Nanyang Technological University (School of Civil and Environmental Engineering), Singapore.

Walwyn, D.R. & Nkolele, A.T., 2018, 'An evaluation of South Africa's public-private partnership for the localisation of vaccine research, manufacture and distribution', *Health Research Policy & Systems* 16, 1. https://doi.org/10.1186/s12961-018-0303-3

Wei, L., Wenjuan, L. & Xu, X., 2015, 'The analysis of the PPP financing model application in ports of China', *Journal of Coastal Research* 73(suppl. 1), 4–8. https://doi.org/10.2112/SI73-002.1

Wheat, P., Stead, A.D., Huang, Y. & Smith, A., 2019, 'Lowering transport costs and prices by competition: Regulatory and institutional reforms in low income countries', *Sustainability* 11, 5940. https://doi.org/10.3390/su11215940

Withrington, P., 2011, *Road versus rail*, viewed 20 June 2020, from https://iea.org.uk/blog/rail-versus-road.

World Bank Group (WBG), 2013, Disclosure of project and contract information in public-private partnerships, World Bank Publications, Washington, DC.

World Bank Group (WBG), 2015a, *Organization*, viewed 12 April 2018, from http://www.worldbank.org/en/about/leadership.

World Bank Group (WBG), 2016, *A framework for disclosure in public-private partnerships*, viewed 26 April 2022, from https://thedocs.worldbank.org/en/doc/143671469558797229-0100022016/original/FrameworkPPPDisclosure071416.pdf.

World Bank Group (WBG), 2019, *Private participation in infrastructure (PPI) database*, viewed 15 February 2018, from https://ppi.worldbank.org/.

World Population Review, 2019, *GDP ranked by country 2022*, viewed 08 June 2022, from https://worldpopulationreview.com/countries/countries-by-gdp.

World Bank Group (WBG), 2020a, *Private participation in infrastructure data*, World Bank, Washington, DC, viewed 06 May 2020, from https://ppi.worldbank.org/en/ppidata.

WSP International Management Consulting, n.d., *Public private partnership in India*, viewed 08 June 2022, from https://assets.publishing.service.gov.uk/media/57a08afa40f0b649740008b6/TI_UP_HD_Aug2010_Public_Private_Partnership_in_India.pdf.