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APPRAISING CAPACITY-RELATED CHALLENGES NEGATING INFRASTRUCTURE DELIVERY PERFORMANCE IN GOVERNMENT DEPARTMENTS: INSIGHTS FROM THE RESOURCE-BASED THEORY

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ABSTRACT

Public sector's effort to bridge the gap between capacity demand and supply has been elusive. This challenge is glaringly noticeable, especially when mega infrastructural projects are undertaken. This study uses the Value, Rarity, Imitability and Organised (VRIO) Framework to assess the human resource attributes of government departments in South Africa and how this impact organisational performance vis-à-vis infrastructure delivery. It also proposes practical guidelines via an improvement plan developed to enhance overall organisational performance. A within-case study mixed methods research design was used. Data were elicited from a provincial government department in KwaZulu-Natal, South Africa. Quantitative data was obtained via a structured questionnaire survey, whereas qualitative data was obtained through structured interviews. The findings of the study confirm the capacity constraints prevalent within the public sector. Based on the VRIO Framework, the human resource attributes of the department were found to be valuable, and the organisation organised. However, the resources lacked the rarity and inimitability attributes. Consequently, this impacted the department's competitive advantage and overall performance. Furthermore, when the organisation's performance was assessed across nine dimensions, namely; strategy, leadership, people, products, culture, technology, operations, customers and governance, culture had the lowest performance rating. Limited studies have sought to investigate the level of preparedness of public sector organisations to carry out their cardinal roles required for successful infrastructure delivery. Accordingly, this study evaluates the government's performance in public infrastructure delivery using the VRIO Framework, which is underpinned by the resource-based theory (RBT).

Keywords: Public Sector, Infrastructure, Organisational Performance, Competitive Advantage, VRIO Framework, Resource-Based Theory

1. INTRODUCTION

The government's primary mandate is to ensure that the social welfare of its citizens is well catered for by providing public goods and services without maximising profit (Fourie and Poggenpoel, 2016). Properly planned and delivered infrastructure remains a vehicle to welfare maximisation and economic growth (Malete and Khatleli, 2020; Hua, 2017: 4; Azam and Bakar, 2017). Infrastructure assets are considered by the government and government-

owned businesses as a platform for facilitating service delivery to citizens (SIPDM, 2015). According to the McKinsey Global Institute estimates, infrastructure assets make significant contributions to the GDP, in certain instances accruing an estimated socioeconomic rate of return of 20 per cent (Bielenberg, Williams and Woetzel, 2020: 2). To achieve national macro-objectives leveraging infrastructure as one of the key drivers for economic growth, the pivotal role of governments around the globe in the infrastructure delivery process has been elucidated severally. Such involvement has led to the choice of projects being influenced by political dynamics, among other factors associated with government bureaucracy (Bielenberg et al. 2020: 2; DeGood, 2020: 1; OECD, 2015: 2). Accordingly, political power is demonstrated through the design, location, scale, and scope of the infrastructure projects (DeGood, 2020: 1). DeGood (2020:1) further observed that infrastructural development trends indicate that access to infrastructure is disproportionately allocated. The discernible spatial and disparate distribution of infrastructure is such that benefits accrue to the affluent groups, while the burdens of disinvestment, pollution, and geographic isolation fall on low-income communities and communities of colour (DeGood, 2020:1). South Africa is no exception in this regard, DPME (2014) emphasised how subsidised services were delivered to certain population groups on equity or other grounds. This led to the post-1994 government of South Africa placing emphasis on remedying the imbalances in infrastructure distribution by prioritising fair and equitable distribution of services to all communities (Bolton, 2006). To curb such challenges, Bielenberg et al (2020: 2) suggest that a government ought to prioritize infrastructure projects that generate substantial public benefits. Unfortunately, most governments find it difficult to select the right projects with the most benefits due to their inability to harness reliable data and analytics, robust financial models and designs, and deploy same during project selection (Bielenberg, 2020: 2). This appears to be the case in developing countries, like South Africa.

Successive democratic governments in South Africa appear to have brought about a new dispensation aimed at rebuilding and reallocating infrastructure assets towards bridging the infrastructure deficit, stimulating economic growth, and engendering inclusivity (DPME, 2014). Despite the significant budgetary commitments made by the South African government towards the actualization of these mandates, the demand for infrastructure remains unmatched (Malete and Khatleli, 2020; Policy Brief, 2015; NDP2030, 2011). The prevalent lack of capacity and inadequate skills within government contracting institutions for clearly articulating a sustainable pipeline of projects, thereby culminating in infrastructure backlogs and the lack of business confidence, has been blamed for the partial realization of the total infrastructure value. Consequently, a substantial proportion of the population still lives below the poverty threshold, approximately 55.5% (30.3 million people), whilst the society remains highly unequal (World Bank Group, 2020). According to SAICE (2017) excerpts from a recent evaluation of the state of South African infrastructure on a scale of A to E, with A being "world class" and E "unfit for purpose; indicated that the country was rated at an average of D+. Buttressing the poor state of South African infrastructure, Draga (2017: 238) whilst reporting on the results from a survey of school infrastructure, concluded that "…crumbling classrooms, horrendous bathrooms, cracked fences, and non-existent libraries and laboratories remain a reality for thousands of school-going children across South Africa".

The challenges associated with infrastructure developments in South Africa have been primarily attributed to poor performance, institutional failures, and capacity constraints within the public sector (Malete and Khatleli, 2020; Thumbiran and Raphiri, 2016; National Treasury, 2012). Bolstering this assertion, Hagerman (2012) maintained that public entities remained the most affected by capacity deficiencies, resulting in reported low performance levels. According to CIDB (2012), the poor performance and incapacity of the public sector has given rise to the following infrastructural delivery challenges, which all have a bearing on project success:

- Poor planning and budgeting
- Poor project designs and inadequate documentation
- Poor management of projects during execution
- Inadequate support during the delivery processes
- Inadequate knowledge management and reporting.

In a nutshell, South Africa needs to have the capability and capacity to oversee and manage infrastructure projects from inception to close out to ensure that they are effectively and efficiently delivered. Despite infrastructure being one of the core areas highlighted to address societal challenges, the performance of public sector organisations in this regard appears to be failing, judging from the plethora of failed or abandoned projects in the country. Whereas various studies have sought to investigate extant infrastructure delivery models in South Africa and, to recommend improvements thereof from a multi-stakeholder perspective (Khumalo, Choga and Munapo, 2017; Isa, Emuze, Das and Awuzie, 2018; Dithebe, Aigbavboa, Thwala and Oke, 2019), limited studies have sought to investigate the level of preparedness of public sector organisations to carry out the cardinal roles required for successful infrastructure delivery. Accordingly, this study evaluates the government's performance in public infrastructure delivery using the Value, Rarity, Imitability and Organised (VRIO) Framework, which is underpinned by the resource-based theory (RBT). Also, this study proposes practical guidelines via an improvement plan for enhancing overall organisational performance in such project environments. It is expected that public sector organisations can adapt this plan in addressing the challenges they are faced with during infrastructure delivery.

Subsequent sections of this article are structured as follows: a brief review of literature articulating the relationship between organisational performance and competitive advantage in the public sector, the resource-based theory and the VRIO framework, a justification and clarification of the research methodology deployed in the study, the presentation and discussion of findings and a conclusion.

2. LITERATURE REVIEW

2.1 Competitive Advantage

Competitive advantage can be viewed as the ability of an organisation to significantly predict the variance in its performance (Matthews and Shulman, 2005). An organisation can only gain a competitive advantage when it develops or acquires certain characteristics that enhance it to outperform its rivals (Wang, 2014). As an important component of strategic management, competitive advantage can be viewed from two lenses; on the one hand, it focuses on performance aspects, such as superior financial performance and economic profits, and on the other hand, it focuses on its determinants, for example, distinct firm resources and capabilities (Sigalas and Pekka-Economou, 2013). Competitive advantage has been a subject of interest to many researchers and industry practitioners alike, as it seeks to explain performance variances among firms (Ceccagnoli, 2009).

Competitive Advantage in the Public Sector

Within the public sector, competitive advantage plays a dual role of (i) enhancing improvement in the delivery of public services and (ii) helping in the elimination of inefficiencies and waste (Popa, Dobrin, Popescu and Draghici, 2011). Public sector organisations are funded by the government, and the amount of funding allocated to each entity is largely dependent on the entity's ability to persuasively motivate for such funding (Matthews and Shulman, 2005). This creates competition within the public sector as each entity strives to get a budget allocation that is as close to its target as possible. A firm's

resources and its ability to effectively and efficiently deploy these resources will contribute to the organisation's competitive advantage. Characteristics enhancing competitive advantage within the public sector, which can be referred to as distinctive capabilities, include, inter alia, innovation, reputation, human capital and information technology (Popa et al., 2011).

Innovation is one of the most important sources of competitive advantage. According to Popa et al. (2011), innovation affects the very essence of the organisation and, it is through innovation that improvements in service delivery are sought. Innovation propels most institutions to strive for continuous improvement and to continuously adapt to changes, the needs of citizens, stakeholders, etc. (Alimin, Raduan, Haslinda and Jegak, 2010).

Human Capital (Competencies) is another source of competitive advantage for public sector organisations. Skills, training, and experience are examples of human capital that can enhance public sector performance (Popa et al., 2011; Waheed, 1999). With adequate human capital, the inefficiencies experienced within the public sector, such as time and cost overruns, can be significantly reduced, and the quality of services can be improved (Alimin et al., 2010). Competencies, which have been cited as essential strategic possessions within an organisation, signify both the knowledge and skills required to perform useful actions (Majeed, 2011). According to Morris (2019), human capital is very important to such an extent that when most managers are asked what they attribute the performance of firms, they briefly respond with, "our people".

Information Technology (IT) also represents a source of competitive advantage (Swamidass and Kotha, 1998). With the digital era and technology evolving at a fast pace, it is no doubt that organisations are frequently turning to information to gain competitive advantage and recognize the need to engage in new management technologies (Popa et al., 2011; Abdelkader and Abed, 2016). However, some scholars dispute that IT can be a source of competitive advantage, especially when the IT environment is dynamic and is easy to replicate (Dehning and Stratopoulos, 2003). However, IT can be used as a strategic tool that offers differentiation between organisations (Bobb and Harris, 2011).

Reputation - Good reputation is considered a valuable asset that allows a firm to achieve superior performance (Baldarelli and Gigli, 2014). According to Olmedo-Cifuentes et al. (2014), reputation can be assessed through aspects such as, inter alia, financial performance, quality of management, quality of leadership, human resources, quality of products and services, and innovation.

2.2 Performance

Performance can be viewed in terms of quality; quality of actions is termed competence or capacity, and quality of the achievements equates to results (Van Dooren, Bouckaert and Halligan, 2015. When both of these quality aspects are achieved, this results in sustainable outcomes (Ibid). Extant literature is replete with various definitions of the term 'performance'. While Krause (2005) defined performance as the extent to which objectives are achieved, Wettstein and Kueng (2002) described the performance as the degree of stakeholder satisfaction. The term 'performance' describes the contribution of specific systems (organisational units of differing sizes, employees, and processes) to attain an organisation's goal (Hauber, 2002). Amidst all the definitions brought forth by different authors, the two 'E's, namely 'effectiveness and efficiency' are commonplace, with the former being the delivery of desired outputs and even outcomes, whilst the latter points to using as few inputs as possible to obtain these outputs (Samsonowa, 2012). Samsonowa viewed performance as a team rather than an individual effort and went further to define it as the degree of goal achievement of an organisation. Building on the definition proffered by Samsonowa (2012), Ghalem, Okar, Chroqui, and Semma (2016: 5) suggested that performance be defined in terms of goal achievement as a whole rather than the degree (partial) of goal achievement. They went further to define performance as "the goal

achievement of an organisation rather than of individuals, with the minimum resources consumed to reach the goal". This aligns with Raduan, Jegak, Haslinda and Alimin's (2009) proposition that the source of performance is linked to organisational resources, capabilities, and systems.

Performance in the Public Sector

According to Otley (2001), the term performance is applicable to both private and public sector organisational contexts. However, in the public sector context, performance can be viewed in terms of the triple 'E's, namely: effectiveness (focused on the level of goal attainment or delivering desired outputs), efficiency (the resources that were consumed to reach the level of achievement, the least the resources, the more efficient), and economy (buying inputs as cheaply as possible) (*Ibid*). Chai (2009) expanded on these to five 'E's' by adding equity and environment.

Similarly, Profiroiu (2001) defined performance in the public sector as "the result of the simultaneous exercise of efficiency, effectiveness and adequate budgetary process". On the other hand, Van Doreen, Bouckert and Halligan (2015) stated that the public sector's performance is about intentional behaviour, which can either be at an individual or organisational level. In terms of public sector performance, Otley (1999) stated that a well-performing organisation is one that successfully attains its objectives. Demeestére in Matei (2006) stated that organisational performance embraces the concepts of; adequate implementation processes, focus on target groups (customers, users, etc.) and effective use of institutional resources to achieve the desired results. A graphical presentation of organisational performance, according to Matei (2006), is provided in Figure 1.

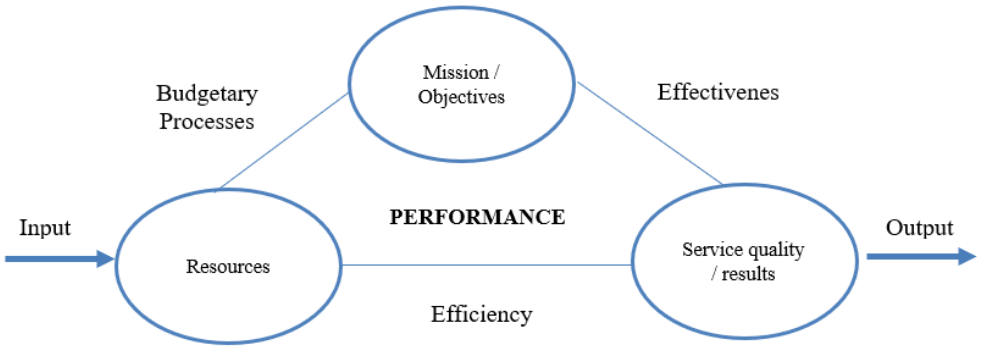

Figure 1: Performance (Matei, 2006)

In defining performance, Folan (2007) seemed to have taken into account Matei's perspective as he articulated the three objectives of performance, namely: (i) performance should be analysed by each entity within the limits of the environment in which they decide to operate (resources), (ii) performance is always linked to one or several objectives (set by the entity whose performance is analysed) (mission/objectives), and (iii) performance is reduced to the relevant and recognizable features (results). Consequently, it is imperative that the public sector be adequately resourced and capacitated.

Capacity within the public sector entails a government's ability to deliver services (infrastructure in this case), implement policies, and provide policy advice to decision-makers (Polidano, 2000). Considering the status of the public sector as the largest owner and occupier of immovable assets, it is crucial for public sector entities to be adequately resourced, possessing a skilled and competent workforce, to adequately manage these assets (Yusof, 2013). This bolsters the need for capacity building and skills development throughout all

organisational levels to ensure that projects are properly conceptualised, prepared and executed (Ramokgopa, 2021). This is corroborated by Andrews and Boyne (2010), who observed that capacity has a positive correlation with public sector performance. Their study concluded that high-performing governments have better capacity than their lower-performing counterparts. Furthermore, Ingraham, Joyce, and Donahue (2003) assert that capacity is a critical determinant of improved performance and service quality in organisations. These findings buttress the link between the lack of requisite capacity and capabilities within South Africa's public sector and its perceived poor performance with regard to infrastructure delivery.

In a bid to improve the performance of public infrastructure development, the South African government allocated R400 million to address the capacity challenges (Budget Review Report, 2019). However, issues dealing with compliance among public sector organisations, like the case with the i-tender and register of projects (RoP) where it is mandatory for public sector clients to register projects with a minimum value of R200 000, remains a challenge. Also, the CIDB Annual Report (2020) highlighted the poor performance of provincial government departments. In comparison to the national average of 33%, KwaZulu-Natal departments were compliant on 489 out of 1453 projects indicating a 34% compliance. Only two out of the nine provinces had a compliance level above 50 %, namely Northern Cape (71%) and Western Cape (63%), whereas Gauteng had a deplorable performance at a mere 3%. The overall poor performance was largely attributed to incapacitation by the departments, leading the CIDB to offer ongoing capacitation programmes. The Budget Review Report (2019) revealed that some government departments were facing major challenges in attracting and retaining built environment professionals, and this counters and undermines efforts to increase capacity.

Given the above discussions on performance and competitive advantage, it could be deduced that human capital and resources have a significant impact on organisational performance.

2.3 Competitive Advantage and Organisational Performance in the Public Sector

Alimin et al. (2010) asset that every organisation strives to attain both a competitive advantage and improved performance relative to its rivals. However, the relationship between an organisation's competitive advantage and its performance remains contentious in the corpus of extant literature. For instance, whereas Ma (2000) has argued that competitive advantage does not necessarily result in improved performance, other scholars have shown that achieving a position of competitive advantage impacts significantly on a firm's performance (Alimin et al., 2010; Raduan et al., 2009; Morgan, Kaleka, and Katsikeas 2004). Also, Majeed (2011) indicated that a positive association between a company's competitive advantage and its performance does, in fact, exist.

Competitive advantage in relation to organisational performance can be viewed from three perspectives, namely;

(i) Cost-based – organisations that have a cost-based advantage have been shown to have a comparatively better performance when compared to their counterparts (Gimenez and Ventura, 2002; Morgan et al., 2004).
(ii) Product-based – similarly, organisations with a product-based competitive advantage over their rivals have been shown to have better performance (Gimenez and Ventura, 2002; Morgan et al., 2004).
(iii) Service-based – organisations that have a service-based competitive advantage compared to their rivals have been found to have comparatively better performance (Gimenez and Ventura, 2002; Morgan et al., 2004).

The association between competitive advantage and organisational performance was depicted by Raduan et al. (2009) as follows:

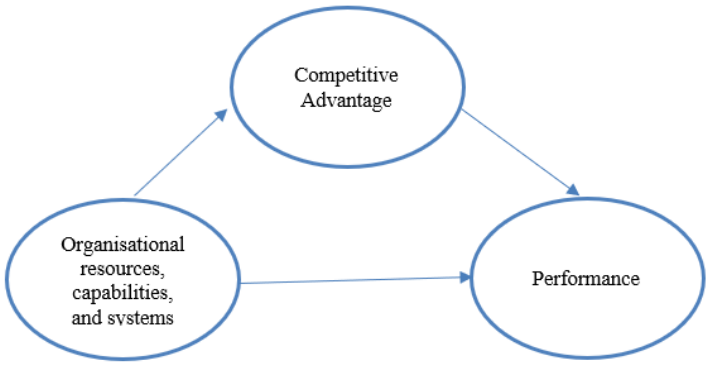

Figure 2: Link between competitive advantage and organisation performance (Raduan et al., 2009)

2.4 Resource-Based Theory (RBT)

An earlier study by Barney (1991) suggested that an organisation is only as good as its internal human capital, that is, the knowledge acquired, its competence and skills-levels, and interactions between employees, which are all critical for both productivity and sustainability. Wu (2007) expanded on that definition and advised that an organisation's performance, therefore, depended on the firm's ability to gather and utilize such intangible resources. These resources encapsulate all aspects of resources utilised by an organisation, namely, assets, capacity, skills set, competence, business practice and processes, systems and procedures, information management, and intellectual property (Ibid). These allusions gave rise to the resource-based theory (RBT). A central premise of RBT is that it is one of the "most prominent and powerful theories for understanding organizations" (Barney et al., 2011). Contextually, the RBT accentuates the principle that an organisation's performance is dependent on the resources available, and it directly represents the capabilities of the organisation (Bridoux, 2003). Also, organisational success is determined by the competence level of human capital, especially that of management (Berger and Bonaccorsi di Patti, 2003).

The RBT focuses on an organisation from within and argues that performance is a result of utilising available resources and capabilities to seize any market opportunities (Barney, 1991). Contemporary views by Anantadjaya (2008) affirm that the RBT points to the organisation's performance as being dependent on the resources it possesses. The importance of human resources stretches to and is crucial within governmental departments, especially those responsible for the formulation and implementation of public policy (Ibid). Equally important is the ability of these organisations to skillfully deploy their human resources so as to realise their full potential and accomplish set objectives, which are often of a complex nature (Rainey, 2009). Within the past five years, organisational capabilities of the public sector have been a subject of major interest for many researchers and analysts alike (Abderisak and Göran, 2017; Teece, Peteraf and Leih, 2016; Winch and Leiringer, 2016). This interest has been in response to the need to ameliorate the performance of public organisations whose poor efficiency is salient when compared to their private-sector counterparts (O'Toole and Meier, 2015).

Resources are often classified into categories such as physical (e.g., technology and equipment), human (e.g., skills, knowledge, training and expertise) and organisational resources (e.g., organisational structuring and planning, controlling and coordination). For companies to transform these resources into sustainable competitive advantage and improved organisational performance, these resources must have four attributes that can be summarized into the Valuable, Rare, Inimitable and Organised (VRIO) framework (Cardeal

and António, 2012: 10159). This paper will focus on the human category as it seeks to explore the issues of capacity and capabilities constraints.

Valuable, Rare, Inimitable and Organised (VRIO) Framework

The VRIO framework is underpinned by the RBT, which seeks to examine the link between an organisation's internal characteristics and its performance (Cardeal and António, 2012). It is a strategic tool that helps organisations to determine the quality and usefulness of their resources.

Valuable - A resource must be valuable, and it is considered so when it enables a firm to improve its efficiency and effectiveness by exploiting opportunities or neutralizing threats (Cardeal and António, 2012). According to Newbert (2008), valuable resources will remain latent until the firm has the capabilities needed to deploy them, hence the importance of capabilities.

Rare - Resources must be rare. That is to say that it must only be acquired by one or a few companies to be considered rare (Cardeal and António, 2012).

Inimitable - Resources should not be easily imitable or, at the least, should be hard and costly to imitate or substitute. According to the RBT, resources can be imperfectly imitable due to a combination of three reasons:

(i) Unique historical conditions - for example, lessons learned to influence future decisions or location of a facility
(ii) Causal ambiguity - competitors are unaware of the resources to imitate; therefore they would not have the ability to duplicate them
(iii) Social complexity – which social network strength, which makes it very hard for competitors to build an identical social network as it is dependent on a lot of variables

Organised - An organisation only gets to benefit from its resources if it is organised in such a manner as to adequately exploit its resources and capture the value from them. The organisation, therefore, needs the *capability* to assemble and coordinate its resources effectively. When all four resource attributes are present, this enhances an organisation to have a sustainable competitive advantage and improved performance.

The VRIO framework has been extensively deployed in extant studies for conducting different strategy-performance evaluations within various organisational contexts. For instance, (Miethlich and Oldenburg, 2019) used the framework in assessing the impact which the employment of persons with disabilities will have on organisational performance, leveraging the engagement of such persons as a strategic asset. Also, Chatzoglou, Chatroudes, Sarigiannidis and Theriou (2018) used the framework to appraise the role of firm-specific factors in facilitating the strategy-performance nexus within organisations. The framework was used by Gutiérrez-Martínez and Duhamel (2019) in an evaluation of the impact of sustainability-oriented attributes of firms operating in Mexico's hospitality industry on performance. Hussain and Terziovski (2019) utilized the VRIO framework in assessing the appropriation of intellectual property as a resource in technology-intensive organisations. Judging from this varied use of the framework for assessing the contribution of firm-specific factors towards engendering sustainable competitive advantage in organisations, it is hoped that its deployment in the present study will contribute towards an effective assessment of and identification of any capacity/capability gaps within South African public sector organisations which might negate effective and efficient infrastructure delivery therein, albeit relying on cases within a particular province, KwaZulu-Natal.

3. METHODOLOGY

3.1 Research Methods

A within-case study research design was used to appraise capacity-related challenges negating infrastructure delivery performance in a KwaZulu-Natal provincial government

department. This study adopted a mixed-methods approach by following a sequential explanatory strategy as suggested by Terrell (2012). Data collection was carried out through a two-step process with the questionnaire survey preceding interviews, as depicted in figure 3.

Figure 3: Sequential explanatory strategy (Terrell, 2012)

For the design of the questionnaire, a literature review was used to establish key aspects impacting the government's role in public infrastructure delivery. Thereafter, a preliminary questionnaire was developed, and a pilot study was undertaken to improve the questionnaire and to provide valuable feedback that would be incorporated subsequently.

Distribution of questionnaires was done from October 2019 to July 2020 electronically, via email and SurveyMonkey, which had the added advantage of being environmentally friendly (Nwaki and Eze 2020: 65). The latter step involved the use of follow-up semi-structured interviews to better understand the results of the quantitative survey and validate the findings from the questionnaire survey. The primary focus of the selected strategy was to provide for in-depth interrogation of the quantitative results through interviews, placing more emphasis on the lowly ranked items to improve their implementation and organisation performance.

3.2 Population and Sample

Senior built environment professionals, namely architects, engineers and quantity surveyors, were the target respondents within the case organisation. It was a prerequisite for all respondents to have over five years of experience working in the public sector. A pilot study was conducted to test the adequacy, clarity and completeness of the questionnaire and to identify any potential problems that could be encountered during the data collection stage. The pilot questionnaire was sent to 12 individuals within the Department; nine employees and three senior managers, resulting in twelve pilot questionnaires being administered.

As informed by the outcome from the pilot study, the population was greatly reduced to include only senior professionals and individuals in managerial positions as they possessed the adequate knowledge to make meaningful contributions to the study. This resulted in a combined list of 20 individuals forming the population. Krejcie and Morgan (1970: 608) recommends that for a population of 20, the sample size be 19. This study however surveyed the entire population due to its small size. Additionally, the study placed priority on obtaining quality results rather than population and sample sizes.

Questionnaires were sent to the 20 participants by email and a total of 12 questionnaires were completed correctly and returned representing a 60% response rate. Taking a proposition by Moyo and Crafford, (2010: 68) into account where survey responses within the built environment vary between 7% and 40%, the response rate is deemed as appropriate to support this empirical study.

Table 1: Data sources

Source	Number	Example
Questionnaires	20	Senior professionals
Interviews	3	Managers and directors

3.3 Questionnaires

The questionnaires were distributed only to senior professionals and managers as they possessed the relevant knowledge and experience to make valuable input. To reduce the respondents' bias, the questionnaires were structured to contain definite and pre-determined questions which were closed (Akintoye and Main, 2007: 601). The questionnaire was divided into two sections and comprised of 55 questions. The first section had three questions that captured the demographics of the respondents, such as their years of experience and the position that they occupy. The remaining 52 questions in the second section were expected to capture data on the nine dimensions which impact organisational performance in relation to public infrastructure delivery. The questions in the second section were elicited from literature review Respondents were required to rate the questions on a 5-point Likert scale (1 = almost always, 5= never).

3.4 Interviews

Interviews were conducted with three directors of infrastructure/senior managers to validate the findings from the questionnaire surveys. The semi-structured interviews focused on the lowest-ranked items from each dimension, as improving on these aspects would result in an improvement of the dimension, consequently resulting in overall performance improvement. Furthermore, the interviews sort to establish the human resource attributes of the department via the VRIO framework. An important feature of interviews is that, unlike other data collection methods, they allow for dialogue and are interactive, leaving room for emerging related topics to be discussed and for the provision of clarity when needed (Alshenqeeti, 2014). In adherence to the advice provided by Berg (2007), the researchers used a checklist to ensure that the interview questions aligned with the study aim and that all relevant topics were covered. In adherence to the Covid-19 protocols, the interviews were conducted telephonically or via electronic communication channels to eliminate physical contact. Since the interview method was a follow-up to the questionnaire survey, the study was limited to one interview session for each respondent. At the conclusion of the interview, interviewees were given the opportunity to comment or ask any questions concerning the study.

3.5 Data Analysis

Quantitative data analysis was done using the Statistical Package for Social Sciences (SPSS) version 26. Descriptive statistical analysis was used to analyse quantitative data, and inferential statistical analysis was used to generalize the findings. When quantitative data was subjected to a reliability and consistency test using the Cronbach alpha test. The alpha values ranged between 0.70 and 0.91, which is indicative of at least a "good" level of reliability and is therefore acceptable. These values align with the recommended acceptable Cronbach's alpha values of between 0.60 - 0.95 (Taber, 2018: 1279).

On the other hand, thematic analysis was used for qualitative data. The interview responses were analysed through the following guidelines for analysing textual data developed by Taylor-Powell and Renner (2003). This followed a five-step process, namely: (i) get to know and understand your data, (ii) focus the analysis (iii) categorise information by identifying themes and patterns and organising them into coherent categories, (iv) identify patterns and connections within and between categories, (v) and interpretation, by bringing it all together.

4. RESULT AND DISCUSSION

4.1 Questionnaire Survey

Basic Respondents Information

The results in Table 2 below indicate that there were no respondents in the age range of between 18 and 25. This can be attributed to the fact that the department did not have anyone within that age range with the requisite five years' experience to partake in the survey. Furthermore, the results demonstrate the gender imbalance within the department with a 1:2 female to male ratio in respondents. 75% of the respondents were senior professionals, with the balance being in management positions.

Table 2: Respondents' Profile

Characteristics	Category	Frequency (n = 12)	Percentage
Age	18 - 25 years	-	0
	26 - 39 years	5	41.7
	40 - 49 years	5	41.7
	50 - 59 years	2	16,7
	60 - 65 years	0	-
Gender	Female	4	33.3
	Male	8	66.7
Profession	Architect	6	50.0
	Quantity Surveyor	4	33.3
	Engineer	2	16.7
Position	Management	3	25.0
	Senior Level	9	75.0
Experience	< 5 years	0	-
	5 -10 years	10	83.3
	11 - 15 years	2	16.7

Organisational performance

Table 3 is a presentation of the mean rankings pertaining to the frequency in which dimension items are implemented. The department had an overall performance rating of 3.00 across all nine dimensions.

Table 3: Organisational performance across all nine dimensions

Dimension	Mean	SD	Rank
Governance	4.063	0.715	1
People	3.500	1.059	2
Products	3.438	1.045	3
Leadership	2.778	0.927	4
Strategy	2.774	0.790	5
Customers	2.764	0.989	6
Technology	2.727	0.819	7
Operations	2.683	0.998	8
Culture	2.300	0.824	9
Grand mean	3.003	0.907	

A number of inferences can be drawn from the responses received from the survey that was conducted. Table 3 shows that the department performed better on the Governance and Products dimensions. This indicates that the department prioritizes and seemingly upholds the aspects of governance. This finding aligns with the Department's Strategic Plan 2015 - 2020, which placed governance aspects, such as transparency, integrity, and accountability, atop organisational core values. The priority placed on governance tenets could be in

response to the reported widespread corruption, fraud and maladministration within government departments. The department's performance within the products dimension is second highest. This is probably to ensure that infrastructure projects are delivered according to need and are fit for purpose. This is especially when the department is committed to the provision of efficient and responsive infrastructure, which is demonstrated through product outcomes.

On the other hand, the culture dimension scored the lowest. While a positive organisational culture has been argued to improve the overall performance of the organisation, a negative one has the potential to hinder even the most successful organisations (Shahzad, Luqman, Khan and Shabbir, 2012). Taking into account the role of an organisation's culture in influencing performance improvement, the generally low performance in this dimension could be linked to the overall poor organisational performance. Culture is a key attribute in attracting talent, and it has been cited as greatly influencing employee commitments and job retentions (Wong, 2020). However, an Annual Performance Report (2020) indicated that provincial government departments were experiencing challenges in attracting and retaining built professionals, and this undermined the effort to increase capacity.

Furthermore, Shahzad et al. (2012) argue that it is the leadership's responsibility to ensure that employees understand and embrace the organisation's culture to enhance improved performance. The relatively low score attached to the leadership dimension, as a result, could be linked to the low to average departmental performance. Although the general organisational performance mean stands at level 3, implementation of six out of the nine dimensions remains at level 2. Therefore, the department ought to focus and improve on these aspects to enhance organisational performance and infrastructure delivery. This can be achieved through capacity building in the following areas;

(i) Administration and systems include, among other factors, policy and governance issues, procurement strategies, monitoring and evaluation, and feedback loops.
(ii) Skills - namely technical, financial and people-oriented skills
(iii) Resources - namely training programmes and mentoring processes, and policies
(iv) Decision making
(v) Technology and IT support

4.2 Interviews' Data Analysis

Three interviews were undertaken with interviewees X, Y and Z. In response to being asked to provide possible explanations for the lowest-ranked questionnaire aspects, Respondents' responses are as follows.

Culture (2.30) - There was consensus among the respondents in relation to the low score attached to this dimension. Respondent Z admitted that "this is an area the department could improve on", as it had not been adequately supporting team-building initiatives. He went further to assert that when tackling the aspects of innovation within the departments, it was observed that although the department appeared to support and encourage innovation, the stringent protocols within the department somewhat made it difficult for individuals to be innovative.

Operations (2.68) - The interviewees seemed to slightly disagree with the low score. The main aspects that were brought up under this dimension bordered around having decentralised systems and frequency of audits and training to improve the quality of processes. Transparency required when managing the budget or when dealing with public funding was a major factor in having a centralised system. Respondent X noted that when systems are completely decentralized, one loses control, and as such, "Financial control is the main reason why the systems are not decentralized". The respondents agreed that quality is a key objective, as such regular audits were undertaken. However, the department did not

support the certain endeavour; for example, training was not prioritized, and neither was it conducted on a frequent basis conducted.

Technology (2.73) - Respondent Z indicated that the technology aspect goes far beyond communication and information flow. Their department, however, utilized mostly emails, and the absence of a web-based system was cited as a big problem that would hopefully be addressed in the near future. Generally, there was consensus among the respondents in relation to this low score. It could be summarised that the technology dimension in its entirety requires improvement, and the department could do more to improve given the direction in which the world is taking.

Customers (2.76) - There was consensus among the interviewees that they partly agreed with the seemingly low score attached to this dimension. Interviewee Z justified this low score as he indicated that the department has a customer data/project priority list, which they utilized, although it is often interfered with, leaving some beneficiaries dissatisfied as they had to wait longer than usual.

Strategy (2.77) - All interviewees disputed the low score attributed to the strategy dimension as they emphasized that strategy was at the core of the department. It could be a lack of buy-in from the survey respondents to the values and directions of the organisation. This calls for more training on the mission and vision of the department.

Leadership (2.78) - The interviewees had mixed views on the low score attached to this dimension. Interviewee Z noted that even though the organisation employed individuals based on their experience and qualifications, some individuals in management capacity lacked adequate leadership skills. On the contrary, Interviewee Y opined that the department has excellent managers that are qualified to be in those positions. He further noted that leadership is the driver of an organisation, and it is individually based; it is how an individual manages the resources available. Interviewee X also disputed the low score attached to the leadership dimension by virtue of the Human Resource capacitation programme, where a manager is employed only if they meet specific qualification criteria. He further noted that "…… it could be a possibility but less so, that the individuals appointed by the department are coming from the private sector", with minimum knowledge of the public sector modus operandi, perhaps the perceived low score attached to having a qualified manager per department.

Products (3.44) - One of the department's major objectives is to ensure that they build infrastructure, for example, schools that are accessible to their learners and that cater for the disabled learners, "which is part of our strategic designs, we embrace that" noted interviewee Y. However, due to soaring unplanned settlements, resulting from the province being largely rural and a lot of the land belonging to the Ingonyama Trust Board and Tribal Land, land restitution frequently occurs where large pieces of land are given to a community. The interviewees somewhat concurred with the dimension score as they agreed that meeting key project objectives was very crucial. The department aims at delivering quality projects within the specified time and budget parameters. However, due to various other factors such as contractors' issues, incapacity challenges, etc., this was not always achievable.

People (3.50) - The interviewees seemed to have mixed views on the people dimension. Interviewee X disputed the score attached to this dimension due to the recently initiated government Human Resource capacitation programme and stated that as a result of the programme, "the department is sitting at over 90% capacitation with adequately skilled and competent individuals". However, the other interviewees highlighted that the departments are bedevilled by capacity constraints, and this challenge is apparent when megaprojects ought to be undertaken

Governance (4.06) - The interviewees concurred that the overall high scores attached to governance aspects are justifiable. The organisation generally upholds all aspects related to governance as the department is subject to stringent audits as they utilize public funding.

However, Interviewee Z noted that the civil service is generally poor at governance and disciplining people, "it really has to be bad before anything is done".

Impediments to Department's Performance

When asked to highlight major impediments to the department's performance, there was a consensus among the interviewees that the performance of the department was disappointing, and the department ought to improve its performance. The impediments were summarised and presented below. It can be concluded that most of these challenges emanate from constrained human capital resources:

(i) Incapacity within the department, though it was highlighted that the department sits at 90% occupancy
(ii) Lack of contractor capacity – some contractors have been cited to lack the capacity and experience
(iii) Incapacity of service providers
(iv) Industry challenges - the department works with implementing agents who have their own challenges; the implementing agents, in turn, work with consultants and contractors who have their own challenges
(v) Poor workmanship – which ultimately results in rework, consequently leading to increased project durations and budgets (capabilities constraints)
(vi) Capabilities constraints – for example, confusion, misinterpretation and misunderstanding of contract documents sometimes resulting in disputes between project stakeholders
(vii) Technology and systems challenges – The department manages thousands of projects but works from spreadsheets instead of a webpage.
(viii) Political interference – The projects priority list is often interfered with hence pushing some projects further down the list
(ix) Lack of continuation between financial years - the biggest challenge was cited as getting momentum going between financial years.
(x) Budget Allocation shortfalls – the demand in infrastructure is greater than supply
(xi) Sabotage – the labour force of some contractors, both skilled and unskilled, retard progress to prolong their project duration; the longer the project, the longer they are on the payroll
(xii) Business Forums such as "Delangokubonas" – these are disruptive on sites and consequently lead to, inter alia time and cost overruns
(xiii) Unplanned urgent requirements – In some instances, things are done in a hurry in response to urgent requirements, therefore making it difficult to apply adequate processes and procedures

4.3 Discussion of the findings

This study sought to establish the level of preparedness of public sector organisations in carrying out their key roles required for successful infrastructure delivery. It was found that the level of preparedness was generally on a low to average rating. Consequently, this results in the poor performance of these entities, with a direct impact on the poor state of infrastructure delivery, which is evident and widely reported. With a specific focus on the human capital and capacity aspects, namely, the people and leadership dimensions, despite public entities' efforts to bridge the gap between capacity demand and supply, capacity improvements have been elusive. A report by OECD (2006) identified capacity shortages and building as major challenges affecting most countries, especially the developing ones. These challenges are glaringly noticeable, especially when mega infrastructural projects are undertaken.

Primarily, the human capital aspect oversees and influences the performance of all other dimensions. Given the impact a robust leadership has on organisational performance, low performance in this dimension impacts negatively on the overall infrastructure delivery process. This much was confirmed in Tehreem et al's study in 2013, where it was found that poor leadership skills negatively impacted organisational performance. Additionally, in their study Alnachef and Alhajjar (2015) noted that in order to improve organisational performance, firms need to invest in developing and improving their human resources and capacity, leadership included. In her study, Waheed (1999) found that human resources are very crucial to an organisation's effectiveness, posing as an organisation's main competitive advantage.

Culture, an aspect that has been cited repeatedly in literature as being a critical determinant to organisational effectiveness and performance (Cameron and Quinn, 2011; Waheed, 1999), had the lowest implementation score. A correlation between organisational environments (culture) and the quality of its human resource management system was postulated (*Ibid*). A study undertaken by Kotter and Heskett (2011) of 207 organisations over a period of 11 years affirmed the impact culture has on organisational performance, where they observed that organisations with an adaptive culture performed financially and economically well. Impliedly, this suggests that a positive culture cultivates a good/effective human resource system and vice versa.

Department's Assessment through the VRIO Framework

The VRIO framework was used to assess the human resource attributes of the department as the study sort to appraise capacity-related challenges within the public sector and how these challenges impact organisational performance. The human resource category tackles aspects such as capacity, skills and knowledge, which have been argued to enhance public sector performance (Popa et al., 2011). Following interviews with senior management, the interviewees X, Y and Z concurred that the human resources within the department were valuable and the organisation was organised. However, they cited that the resources lacked the rarity and inimitability attributes. Figure 4 summarises the department's attributes.

Since change is an inevitable aspect of life, it is imperative that for the department's VRIO framework to remain relevant and advantageous, it should be frequently revisited to adapt to these changes.

Department's VRIO and Relative Firm Performance

Table 4 below was adapted from Morris' (2019) work, and it interprets the organisation's competitive advantage and performance based on the VRIO framework. The results from Figure 4 indicate that, relative to the human resource attributes, the department has 'competitive parity' and has 'normal performance'. These results align with those from the questionnaire survey where it was found that the department had an average performance (3.00) across all nine dimensions assessed.

In respect to the VRIO framework, the department's human resources were found to be valuable, and the department organised; however, they lacked the rarity and inimitable attributes. Consequently, this impacted the department's competitive advantage and overall performance. On a VRIO relative firm performance scale from 1 to 4 (where 1=competitive disadvantage and 4=competitive advantage), the department is at 2, with the attributes, namely, 'competitive parity' and 'normal performance'. It is imperative, therefore, that the department focuses on gaining the rarity and inimitable attributes within the human resource category.

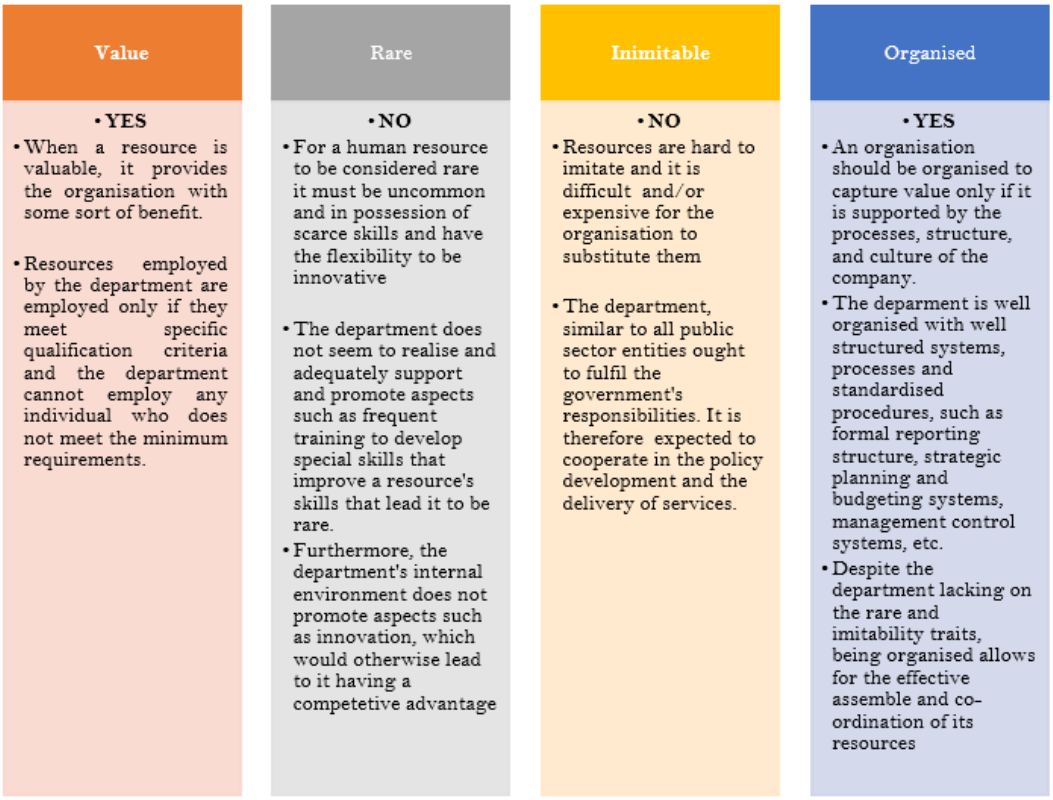

Figure 4: VRIO Framework for the Department

Table 4: VRIO and Relative Firm Performance (Source: Morris, 2019)

Valuable	Rare	Inimitable	Organised / Supported by Organisation	Competitive Implications	Performance
No	--	--	Yes	Competitive Disadvantage	Below Normal
Yes	No	--		Competitive Parity	Normal
Yes	Yes	No		Temporary Competitive Advantage	Above Normal
Yes	No	No		Sustained Competitive Advantage	Above Normal

Improvement Plan: An Example

Practical examples using extracts from this study were used to demonstrate how organisations can improve their performance by focusing on the lowly rated aspects. This would be done by establishing short, medium and long-term improvement plans. For the purposes of this study, the following timeframes will be used:

(i) Short Term – < 1 year
(ii) Medium Term – More than 1 year but less than 5 years
(iii) Long Term – > 5 years

In order to achieve the long-term plans, it is imperative that the short- and medium-term plans are adhered to. By considering the lowest-ranked dimension, namely Culture, Table 5 presents the proposed improvement action plan for this aspect in relation to organisational performance. This process should be followed for every aspect of the department and become a valuable tool to be used in the process of continuous organisational improvement.

4.4 Implications of the study

A major implication of this study is that it provides public departments with the much-needed VRIO tenets to appraise their capacity attributes. Focusing on these specifics would propel the department to improve on its competitive advantage and overall performance.

With the generally low to average preparedness and implementation levels across the dimensions, this study proposes an improvement framework to improve overall public sector performance. This research study is especially timely and relevant given the prevalent mal-performance and incapacity of public sector departments. Depending on the nature of the issues being addressed, the proposed improvement plan can be applied within the short, medium or long term.

Table 5: Improvement action plan

Specific Dimension	Performance concern (Item with the lowest implementation score	Desired performance standard	Short term improvement action	Medium term improvement action	Long term improvement action	Review Information	Date to achieve desired performance
Culture	Lack of periodic training Performance level = 1.83	To have skilled individuals Per level < 4.50	To ensure that there is allocation for periodic training, say once every 4 months	Monitoring of training schedules to ensure strict adherence	Adequate budget provision to cater for training sessions Continued monitoring for adherence to the scheduled training sessions	To be reviewed once every year where the performance of the organisation is to be assessed	A year from implementing periodic training schedule. Dimension performance level is expected to improve following adherence to periodic training by the department

5. CONCLUSION

This study set out to examine the performance of a Provincial Government Department in the South African Province of KwaZulu-Natal in infrastructure development. By deployment of structured questionnaires and interviews through electronic communication channels, data were collected from experienced individuals. Appropriate analytical tools were adopted, and the study was able to make meaningful findings.

The findings of the study confirm the capacity constraints bedevilling the public sector. The findings presented here provide valuable evidence on which to base recommendations for improving public services through building capacity and promoting better leadership. Through using the VRIO framework to analyse the human resource aspect of the organisation, it was found that the department's resources were valuable, and the organisation was organised. However, they lacked the rarity and inimitable attributes. Some employees could possess valuable knowledge and talent but could be oblivious to that and consequently could not be utilising such talent to the maximum. Management could

therefore explore options to enhance interaction and activities that allow for an active flow of knowledge that will promote employees to demonstrate their unique attributes. The department should be more flexible and open to innovation to enable those talented employees to maximise their talent. As a way to promote such initiatives, some form of incentives should be put in place to reward and motivate such talented employees

A recommendation would be for the public sector entities to provide frequent training to their employees and to promote aspects of continuous professional development. Above all, the public sector ought to maintain a culture and environment that helps in retaining its employees. In summary, the findings of this study demonstrate the need for public sector entities to focus on building capacity to improve public sector preparedness and readiness to undertake their roles. Capacity building to improve public sector performance is therefore key in development initiatives, in this respect, infrastructure delivery. Furthermore, an improvement within the cultural dimension is imperative. This much is a necessity, especially when an organisation's culture has been linked to influencing performance improvement. Furthermore, organisational culture can be viewed as a panacea to the capacity challenges affecting public sector entities as it has been cited to contribute to attracting talent and greatly influencing employee commitments and job retentions.

REFERENCES

Abdelkader, B. and Abed, B. (2016). The effect of information technology on the competitive advantage of the firm: the role of environmental uncertainty. International Journal of Management Science and Information Technology, 22, 16 – 39

Abderisak, A. and Göran, L. (2017). Applying the dynamic capabilities framework in the case of a large public construction client. Construction Management and Economics, 35(7), 420-431.

Akintoye, A. and Main, J. (2007). Collaborative relationships in construction: The UK contractor's perception. Engineering, Construction and Architectural Management, 14(6), 597-617

Alimin, A. I., Raduan, C. R., Haslinda, A. and Jegak, U. (2010). The relationship between organisational competitive advantage and performance moderated by the age and size of firms. Asian Academy of Management Journal, 15(2), 157–173

Alnachef, T. H. and Alhajjar, A. A. (2017). Effect of human capital on organizational performance: a literature review. International Journal of Science and Research, 6 (8), 1154 - 1158

Alshenqeeti, H. (2014). Interviewing as a data collection method: a critical review. English Linguistics Research, 3(1), 39-45

Anantadjaya, S. P. D. (2008). Comparative Literature Study on the Resource Based Theory of the Firm and Knowledge Based Theory of the Firm. Jurnal Sistem Informasi, (3)1, 39-50

Andrews, R. and Boyne, G. A. (2010). Capacity, leadership, and organizational performance: testing the black box model of public management. Public Administration Review, 443-454

Azam, M and Bakar, N. A. A. (2017). The role of infrastructure in national economic development: evidence from Malaysia. International Journal of Economic Perspectives, 11(4), 630-637.

Baldarelli, M and Gigli, S. (2014). Exploring the drivers of corporate reputation integrated with a corporate responsibility perspective: Some reflections in theory and in praxis. Journal of Management and Governance, 18(2), 589-613

Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management 17, 99–120.

Barney, J., Ketchen, D. and Wright, M. (2011). The future of resource-based theory: Revitalization or decline? Journal of Management, 37(5), 1299–1315.

Berg, B. L. (2009). Qualitative research methods for the social sciences, 7th Ed: Pearson, California

Berger, A. N. and Bonaccorsi di Patti, E. (2003). Capital structure and firm performance: a new approach to testing agency theory and an application to the banking industry https://ssrn.com/abstract=361280 or http://dx.doi.org/10.2139/ssrn.361280 [Accessed 2 August 2021]

Bielenberg, A., Williams, J. and Woetzel, J. (2020). Four ways to get more from government infrastructure projects. McKinsey and Company Available at: https://www.mckinsey.com/~/media/McKinsey/Industries/Public%20and%20Social%20Sect

or/Our%20Insights/Four%20ways%20governments%20can%20get%20the%20most%20out%20of%20their%20infrastructure%20projects/Four-ways-governments-can-get-the-most-out-of-their-infrastructure-projects.pdf

Bobb, L. M and Harris, P. (2011). Information technology and information systems: Its use as a competitive and strategic weapon. Journal of Global Business Management, 7(2), 16-38

Bolton, P. (2006). Government Procurement as a Policy Tool in South Africa. Journal of Public Procurement, 6(3), 193-217

Bridoux, F. (2003). A resource-based approach to performance and competition: an overview of the connections between resources and competition. IAG Working Papers; 2004/110

Budget Review. (2019). National Treasury, Republic of South Africa

Cameron, K. S. and Quinn, R. E. (2011). Diagnosing and changing organizational culture: Based on the competing values framework. California: Jossey-Bass.

Cardeal, N. and Antonio, N. (2012). Valuable, rare, inimitable resources and organization (VRIO) resources or valuable, rare, inimitable resources (VRI) capabilities: What leads to competitive advantage? African Journal of Business Management, 6(37), 10159-10170

Ceccagnoli, M. (2009). Appropriability, pre-emption, and firm performance. Strategic Management Journal, 30(1), 81-98

Chai, N. (2009). Sustainability performance evaluation system in government: a balanced scorecard approach towards sustainable development. Springer Science and Business Media

Chatzoglou, P., Chatzoudes, D., Sarigiannidis, L. and Theriou, G., (2018). The role of firm-specific factors in the strategy-performance relationship: Revisiting the resource-based view of the firm and the VRIO framework. Management Research Review, 41(1), 46-73.

CIDB (Construction Industry Development Board, 2020). Annual Report 2019/2020. South Africa

CIDB (Construction Industry Development Board, 2012). The standard for the implementation of the IDMS through the Infrastructure Gateway System. South Africa

DeGood, K. (2020). Infrastructure Investment Decisions Are Political, Not Technical. Centre for American Progress. https://www.americanprogress.org/issues/economy/reports/2020/04/14/483084/infrastructure-investment-decisions-political-not-technical/ [Accessed 12 August 2021]

Dehning, B.and Stratopoulos, T. (2003). Determinants of sustainable competitive advantage due to IT-enabled strategy", Journal of Strategic Information Systems, 12, 7-28.

Dithebe, K., Aigbavboa, C.O., Thwala, W.D. and Oke, A.E., (2019). Analysis on the perceived occurrence of challenges delaying the delivery of water infrastructure assets in South Africa. Journal of Engineering, Design and Technology, 17(3), 554-571.

DPME (Department of Performance Management and Evaluation – South Africa, 2014). Twenty-year review South Africa 1994 – 2014. Background Paper: Infrastructure. https://www.dpme.gov.za/publications/20%20Years%20Review/20%20Year%20Review%20Documents/20YR%20Infrastructure.pdf [accessed 20 August 2021]

Draga, L. (2017). Chapter 13 Infrastructure and Equipment. Basic education rights handbook – Education rights in South Africa. Braamfontein, Johannesburg: SECTION27

Folan P., Browne J. and Jagdev H. (2007). Performance: It's meaning and content for today's business research. Computers in Industry, 58(7), 605-620

Fourie, D. and Poggenpoel, Wayne. (2016). Public sector inefficiencies: Are we addressing the root causes? South African Journal of Accounting Research. 31, 1-12.

Ghalem, Â., Okar, C., Chroqui, R. and Semma, E. (2016). Performance: A concept to define. Conference: Logistiqua: Est Berrechid Morocco, 1–12.

Giménez, C. and Ventura, E. (2003). Supply chain management as a competitive advantage in the spanish grocery sector. Economics Working Papers from Department of Economics and Business, Universitat Pompeu Fabra 14, 77-88.

Gutiérrez-Martínez, I. and Duhamel, F. (2019). Translating sustainability into competitive advantage: the case of Mexico's hospitality industry. Corporate Governance: The International Journal of Business in Society, 19(6), 1324-1343

Hagerman, L. (2012). Challenges of regional infrastructure development. Development Bank of Southern Africa.

Hauber, R. (2002). Performance measurement in der Forschung und Entwicklung. Gabler Verlag, Wiesbaden, 24–119.

Hussain, S. and Terziovski, M. (2019). Appropriation of intellectual property: a multiple cross-case analysis of SME practices in technology-intensive industries. Journal of Management Policy and Practice, 20(2), 121-134.

Ingraham, P. W., Joyce, P. G. and Donahue, A. K. (2003). Government Performance: Why Management Matters. Johns Hopkins University Press, USA

Isa, R., Emuze, F., Das, D. and Awuzie, B.O. (2018). Modeling a transformational route to infrastructure sustainability in South Africa. Built Environment Project and Asset Management. 8(2), 147 – 159

Kotter, J. P., and Heskett, J. L. (2011). Corporate culture and performance. New York: Free Press.

Krause, O. 2005. Performance Measurement – Eine Stakeholder-Nutzen-orientierte und Geschäft sprozess-basierte Methode. Dissertation, Technische Universität Berlin

Krejcie, R.V. and Morgan, D.W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607- 610.

Khumalo, M. J., Choga, I. and Munapo, E. (2017). Challenges associated with infrastructure delivery. Public and Municipal Finance, 6(2), 35-45.

Ma, H. (2000). Competitive advantage and firm performance. Competitiveness Review: An International Business Journal incorporating Journal of Global Competitiveness, 10(2), 15-32.

Majeed, S. (2011). The Impact of Competitive Advantage on Organizational Performance. European Journal of Business and Management, 3(4), pp 191-196

Malete, R. and Khatleli, N. (2019). Efficacy in Infrastructure Delivery Post-Apartheid: An Analysis of Infrastructure Delivery Management System in the Public Sector in South Africa. Conference Proceedings: 11th Annual SACQSP International Conference, 16-17 September, Johannesburg, South Africa

Matei L. (2006). Management public – ediţia a doua [Public Management – Second Edition], Economic Publishing House, Bucharest

Matthews, J and Shulman, A. (2005). Competitive advantage in public-sector organizations: Explaining the public good/sustainable competitive advantage paradox. Journal of Business Research. 58(2), 232-240

Miethlich, B. and Oldenburg, A. G. (2019). The employment of persons with disabilities as a strategic asset: a resource-based-view using the value-rarity-imitability-organization (VRIO) Framework. Journal of Eastern Europe Research in Business and Economics, 1, 1-13.

Morgan, N A, Kaleka, A, and Katsikeas, C. S. (2004). Antecedents of export venture performance: a theoretical model and empirical assessment. Journal of Marketing, 68 (1), 90-108.

Morris, J. (2019). Strategic Management. Oregon State University

Moyo, T. and Crafford, G. (2010). The impact of hyperinflation on the Zimbabwean construction industry. Acta Structilia, 17(2), 53-83.

National Treasury, (2012). Standard for an Infrastructure Delivery Management System. South Africa

NDP (National Development Plan 2030) (2011). Our future make it work. South Africa.

Newbert, S. L. (2008). Value, rareness, competitive advantage, and performance: a conceptual-level empirical investigation of the resource-based view of the firm. Strategic Management Journal, 29, 745–768

Nwaki, W.N. and Eze, E.C. (2020). Lean construction as a panacea for poor construction projects performance. Journal of Engineering and Technology for Industrial Applications, 6(26), 61-72.

O'Toole L. J. and Meier K. J. (2015). Public management, context, and performance: In quest of a more general theory. Journal of Public Administration Research and Theory, 25, 237–256

OECD (Organization for Economic Co-operation and Development, 2015). Towards a Framework for the Governance of Infrastructure. Public Governance and Territorial Development Directorate Public Governance Committee.

OECD (Organization for Economic Co-operation and Development, 2006). The challenge of capacity development. Working towards good practice, DAC guidelines and reference series, OECD, Paris

Olmedo-Cifuentes, I., Martínez-León, I. and Davies, G. (2014). Managing internal stakeholders' views of corporate reputation. Service Business, Springer; Pan-Pacific Business Association, 8(1), 83-111

Otley, D. (1999). Performance management: a framework for management control systems research. Management Accounting Research 10, 363-382.

Otley, D. (2001). Extending the boundaries of management accounting research: developing systems for performance management. The British Accounting Review, 33(3), 243-261

Policy Brief. 2015. Responding to South Africa's Infrastructure Challenge. Financial and Fiscal Commission 1/2015. [Accessed: 14 January 2021]

Polidano, C. (2000). Measuring public sector capacity. World Development, 28(5), 805-822

Popa, I., Dobrin, C., Popescu, D. and Draghici, M. (2011). Competitive advantage in the public sector. Theoretical and Empirical Researches in Urban Management, Research Centre in Public Administration and Public Services, Bucharest, Romania, 6(4), 60-66

Profiroiu M. (2001). Managementul organizaţiilor publice [Management of Public Organizations], Economic Publishing House, Bucharest.

Raduan, C. R., Jegak, U., Haslinda, A., and Alimin, I. I. (2009). A conceptual framework of the relationship between organizational resources, capabilities, systems, competitive advantage and performance. Research Journal of International Studies, 12, 45-58

Rainey, H. (2009). Understanding and managing public organizations, 4th edition. San Francisco: Jossey-Bass.

Ramokgoba, D. (2021). Tackling South Africa's infrastructure deficit: the role of development finance institutions. policy insights 102, African perspectives global insights. South African Institute for International Affairs

SAICE (The South African Institution of Civil Engineering, 2017). Infrastructure Report Card for South Africa.

Samsonowa, T. (2012). Industrial Research Performance Management Key Performance Indicators in the ICT Industry.

Shahzad, F., Luqman, A., Khan, A. and Shabbir, L. (2012). Impact of Organizational Culture on Organizational Performance: An Overview. Interdisciplinary Journal of Contemporary Research in Business, 3(9), 975-985.

Sigalas, C. and Pekka-Economou, V. (2013). Revisiting the concept of competitive advantage: Problems and fallacies arising from its conceptualization. Journal of Strategy and Management, 6(1), 61-80

SIPDM (Standard for Infrastructure Procurement and Delivery Management, 2015). www.treasury.gov.za/legislation/pfma/TreasuryInstruction/Annexure%20A%20-%20Standard%20for%20Infrastructure%20Procurement%20and%20Delivery%20Management.pdf

Swamidass, P. and Kotha, S. (1998). Explaining manufacturing technology use, firm size and performance using a multidimensional view of technology. Journal of Operations Management. 17(1), 23-37.

Taber, K.S. (2018). The use of Cronbach's Alpha when developing and reporting research instruments in science education. Research in Science Education, 48(6), 1273-1296.

Taylor-Powell, E. and Renner, M. (2003). Analyzing qualitative data. University of Wisconsin Cooperative Extension (G3658-12). Madison, Wisconsin.

Teece, D., Peteraf, M. and Leih, S. (2016). Dynamic Capabilities and Organizational Agility: Risk, Uncertainty, and Strategy in the Innovation Economy. California Management Review, 58(4)

Tehreem, A. Nawaz, Y. Mahmood, B. Sohail M. M. and Haroon A (2013) Perception about causes and impact of Poor Leadership (A Study in Sargodha City). Journal of Humanities and Social Science, 16, 58-62.

Terrell, S. R. (2012). Mixed-Methods Research Methodologies. Qualitative Report. 17(1), pp 254-265

Thumbiran, I. and Raphiri, R. (2016). CIDB Perspective: Alignment to the Construction Procurement Environment. CIDB, South Africa

Van Doreen, W., Bouckert, G. and Halligan, J. (2015). Performance Management in the Public Sector. 3rd ed. London and New York: Routledge

Waheed, S. (1999). Capacity Building in Public Sector Organisations. The Pakistan Development Review, 38(4), 913 - 934

Wang, H. L. (2014). Theories for competitive advantage, in: Hasan, H. (Ed.), Being Practical with Theory: A Window into Business Research, Wollongong, Australia: THEORI, Australia, 33 – 43.

Wettstein, T. and Kueng, P. (2002). A maturity model for performance measurement systems. Management Information Systems.126(1), 113-122.

Winch, G. M., and Leiringer, R. (2016). Owner project capabilities for infrastructure development: A review and development of the "strong owner" concept. International Journal of Project Management, 34(2), 271-281.

Wong, K. (2020). Organizational Culture: Definition, Importance, and Development. https://www.business2community.com/strategy/organizational-culture-definition-importance-and-development-02309036 [Accessed 14 September 2021]

World Bank Group, (2020). Poverty and Equity Brief, Sub-Sahara Africa, South Africa. https://databank.worldbank.org/data/download/poverty/33EF03BB-9722-4AE2-ABC7-AA2972D68AFE/Global_POVEQ_ZAF.pdf [Accessed: 19 August 2021]

Wu, L.Y. (2007). Entrepreneurial resources, dynamic capabilities and start-up performance of Taiwan's high-tech firms. Journal of Business Research, 60(5), pp 549-555

Yusuf, Y. (2013). The Effectiveness of Public Sector Asset Management in Malaysia. MSc Dissertation, Queensland University of Technology, Australia