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The effect of governance and governmentality on project portfolio success

Authors:
Joseph S. Mohosho[1]
Kwete Mwana Nyandongo[1]
Shopee Dube[1]

Affiliations:
[1]Department of Applied Information System, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa

Corresponding author:
Joseph Mohosho,
jsmohosho@gmail.com

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Orientation: Although project portfolio is a renowned tradition in organisations, its effective management remains a challenge.

Research purpose: The aim of the study was to investigate the effect of governance and governmentality on project portfolio success.

Motivation for the study: Good governance of project portfolio management is perceived as an enabler for management. By realising the effect of governance and governmentality on project portfolio success, organisations will become interested in ensuring that appropriate governance mechanisms are in place and that governance is ingrained in all project portfolio activities.

Research design, approach and method: A deductive approach was applied to test two hypotheses. Quantitative data were collected through a cross-sectional survey from organisations that are involved in project portfolio management. Data were analysed through descriptive and inferential statistics.

Main findings: The results from the 104 online quantitative surveys establish a strong positive relationship between governance, governmentality and project portfolio success. The results further show governmentality as the key predictor of project portfolio success.

Practical/managerial implications: The implication of these findings is that organisations that improve their governmentality will see improvements in their project portfolio performance. Therefore, organisations that are still battling with the management of their project portfolios are encouraged to improve their governmentality.

Contribution/value-add: This study fills the gap in the relationship between governance, governmentality and success at the portfolio level, which has implications for the success of the entire organisation. For an organisation to succeed in the management of its portfolios, it has to improve its governmentality posture and its governance practices.

Keywords: project portfolio management; project portfolio governance; governmentality; project portfolio; success.

Introduction

Despite project portfolio management's (PfM) evolution over the years, organisations are still battling to realise the expected benefits from their investments because of the challenges associated with the management of the project portfolios (Geng et al. 2018; Kock et al. 2020; Oostuizen, Grobbelaar & Bam 2018). However, organisations with good governance are showing better PfM performance (Alexandrova 2020). McCormack (2015:40) defines governance as 'the process of decision-making and the process by which decisions are implemented or not implemented'. Governance has been identified as an enabler for management (Zaman, Nadeem & Nawaz 2020). The existence of governance within an organisation provides a framework that helps managers to make sound decisions as well as take the right actions (Müller, Zhai & Wang 2017; Project Management Institute [PMI] 2016). On the contrary, the absence of governance exposes the organisation to risk such as failure to attain the organisational strategic objectives and operational goals (Baker 2014; Müller et al. 2017). Bolles and Hubbard (2007) cite adherence to governance as one of the key factors influencing a project portfolio's performance. Müller, Pemsel and Shao (2014) argue that the effectiveness of governance relies on governmentality, which Müller, Pemsel and Shao (2015) describe as the mentality of the organisation about governance. This notion is also supported by other scholars (Clegg 2019; Dean 2010).

There is a considerable progress in research that examines project governance and its relationship to project success (Irfan & Hassan 2019; Joslin & Müller 2016; Ul Musawir et al. 2017; Waseem, Iqbal & Khan 2022; Young et al. 2020). However, this advancement has not been made at project portfolio level. The role of governance and governmentality in projects and their correlation with success has also been investigated (Müller et al. 2017). Again, this relationship has not been explored at project portfolio level. Scholars are starting to realise that the culture of the organisation regarding governance is critical to its effectiveness (Dean 2010; Müller et al. 2014), hence the move to expand the research about project governance and its relationship to project success to include governmentality as a companion to governance (Müller et al. 2017). The bulk of the studies about governance are at project level. In 2014, Mosavi highlighted a shortage of research on project portfolio governance. Since then, a search on project portfolio governance still yields minimal results compared to project governance. The shortage of studies relating to governance is a concern that requires close attention, especially with the complexities associated with PfM (Alexandrova 2020; Kaiser, El Arbi & Ahlemann 2015).

The purpose of this study was to investigate the effect of governance and governmentality on project portfolio success, with the intention to promote proper project portfolio governance and governmentality within the organisations. By realising the extent to which governance and governmentality impact project portfolio success, organisations will take an interest in seeing that proper governance mechanisms are in place and that governance is embedded in all the project portfolio processes.

Literature review and hypotheses

Project portfolio management (PfM)

Multiple projects and programmes are initiated and implemented concurrently to improve the economy and service offering for a nation (Habibi, Barzinpour & Sadjadi 2018). Similarly, organisations rely on projects and programmes to implement their strategies (Naik & Kharat 2018; Nyandongo & Mshweshwe 2017; PMI 2017). It can be surmised that projects and programmes have become the lifeblood of nations and organisations (Habibi et al. 2018). Nations and organisations group their strategic projects and programmes in the project portfolios (Lima 2019). Project Management Institute (2017:6) defines a project portfolio as 'a collection of projects, programmes, subsidiary portfolios, and operations managed as a group to achieve strategic objectives'. Based on the characteristics of project portfolios and the unending enormous investments attached to them, it can be inferred that they demand even more robust management processes than projects and programmes. It is this realism that prompted the conception of PfM (Nyandongo & Mshweshwe 2017).

The purpose of PfM is to facilitate the identification, grouping, selection and prioritisation of projects, programmes and other initiatives in consideration of the strategic objectives (Costantino, Di Gravio & Nonino 2015; Oostuizen et al. 2018; PMI 2017) coupled with organisational capabilities and resource availabilities (Office of Government Commerce [OGC] 2011; Naik & Kharat 2018). The expectation is for PfM to promote better decision-making in terms of continuous management of project portfolios such as component reprioritisation, postponement and withdrawals (Hadjinicolaou & Dumrak 2017). However, the continuosly volatile circumstances that organisations face on a regular basis make the management of project portfolios difficult (Costantino et al. 2015; Kock et al. 2020). Assigned parties within organisations are required to constantly review the project portfolio components and make suitable decisions that will safeguard the investments of their organisations (Nguyen et al. 2018).

Project portfolio success

The fundamental purpose of a project portfolio is to promote successful implementation of strategic objectives within organisations (Martinsuo & Geraldi 2020). Scholars agreed that project portfolio goals should promote value maximisation, project portfolio balancing, strategy alignment and the right number of projects. It can be deduced that success in the context of a project portfolio should be tested against the realisation of the aforementioned purpose and goals.

In line with the meaning of project portfolio success, the following six criteria for project portfolio success are identified (Jonas 2010; Voss & Kock 2013; Marnewick 2015; Kopmann et al. 2017):

- A project portfolio that is aligned with the organisational strategic goals and objectives.
- A project portfolio with a maximised financial value.
- A project portfolio with balanced project portfolio components.
- The aggregate success of project portfolio components.
- The usage of technical and market synergies among projects in the project portfolio.
- The future readiness of an organisation in terms of its technological infrastructure requirements.

As a result of the consistent findings over the years about the criteria signalling project portfolio success, the abovementioned six dimensions were adopted in this study as the criteria for quantifying project portfolio success.

Governance

According to PMI (2016), the focus of governance should be on:

> [*W*]ho makes the decision [*decision rights and authority structure*], how the decisions are made [*processes and procedures*], and collaboration enablers [*trust, flexibility, and behavioural control*], thereby defining the governance framework within which decisions are made and decision makers are held accountable. (p. 3)

The statement by the PMI coincides with the remark by Müller et al. (2015:879) that governance provides a framework for constructing ethical decisions and management action that 'builds on transparency, accountability, and defined roles'.

There are various types of governance within organisations (Müller et al. 2017). This includes organisational governance (also known as corporate governance), information technology (IT) governance and organisational project management governance, which is further divided into project, programme and portfolio governance (Erasmus 2020). Corporate governance is a control and oversight mechanism that is implemented at the highest organisational level (Ibrahimov & Omarova 2020). Information technology governance is an important subset of corporate governance that entails the 'leadership and organisational structures and processes that ensure that the organisation's IT sustains and extends the organisation's strategies and objectives' (Von Solms & Von Solms 2008:11). The Association for Project Management (APM) described organisational project management governance as the subset of corporate governance that focuses on providing guidance and oversight for the projects, programmes and portfolios (APM 2012). The focus of governance at project level is to provide direction and oversight for activities relating to project management execution to ensure delivery of products, services or results (Ul Musawir, Abd-Karim & Mohd-Danuri 2020). Unlike project governance, programme governance provides guidance and oversight to programme management in order to enable organisations to realise their expected programme benefits (APM 2012). Owing to the focus of this study, only project portfolio governance is briefly examined.

Project portfolio governance (PPG) involves the collective governance of projects, programmes and other organisational work (Müller et al. 2014). Project Management Institute (2016:42) defines PPG as 'the framework, functions, and processes that guide portfolio management activities in order to optimise investments and meet organisational strategic and operational goals'. Based on this definition, an understanding can be established that PfM activities should be performed within the confines of governance (Müller et al. 2017). The definition by PMI upholds the International Organization for Standardization (ISO 2017:3) description that governance 'authorises, directs, empowers, provides oversights and limits the actions of management'. The purpose of governance in the project portfolio sphere is to 'provide guidance and oversight of the portfolio management function with the intention of optimising the investments and meeting the organisational strategic and operational objectives' (PMI 2016:41).

Project portfolio governance is implemented through the governing structures such as the portfolio governing body, portfolio manager and portfolio management office (Knapp 2018). These structures have clear roles, responsibilities and authorities (APM 2012). Once established, governance structures institutionalise portfolio governance guidelines, policies and procedures, processes, functions and portfolio governance frameworks (PMI 2016; ISO 2017). These governance mechanisms are critical to the implementation and sustainability of PPG (Knapp 2018). The common grounds about the key governance aspects that promote effective and efficient project portfolio implementation and management are as follows (APM 2012; ISO 2017; PMI 2016; Simard, Aubry & Laberge 2018; Young et al. 2020):

- Governance structures: It is critical to form governance structures that oversee, control, integrate and make decisions regarding the PfM. Examples of these structures include governing bodies or executive committees, and enterprise project management offices.
- Roles and responsibilities: The established structures must be assigned roles, responsibilities and appropriate authorities to make suitable decisions. The roles and responsibilities must be very clear in order to enforce accountabilities relating to decisions made.
- Governance processes: Governance processes must be established or adopted to ensure effective management of projects, programmes and portfolios.
- Governance functions: The established governance structures must provide oversight, control, integration and decision-making functions to ensure proper management of projects, programmes and portfolios and attainment of the organisational strategic objectives.
- Governance guidelines, policies and procedures: The guidelines provide useful guidance relating to proper governance of project portfolio. The development policies and procedures are paramount to ensure direction, control and standardisation within organisations.
- Governance framework: Establishment and implementation of the portfolio governance framework is an integral part of portfolio governance. The portfolio governance framework is critical in establishing and defining, among other things, the portfolio boundaries, roles, responsibilities and accountabilities.

Governance and project portfolio success

When accentuating the importance of project portfolio success, the International Project Management Association (IPMA 2015:44) wrote, 'By achieving the portfolio benefits, the organisation fulfils strategic goals, tactical and operational objectives and ultimately organisational success'. While PfM involves the use of methodologies that enable the smooth running of the project portfolios, governance defines these methodologies, thus serving as an enabler for PfM (Müller et al. 2016a). Governance provides a disciplined practice for PfM, therefore improving the chances for project portfolio success (Zaman et al. 2020). The establishment and implementation of appropriate governance mechanisms provide the means to recognise and counteract PfM challenges, which increases the likelihood of project portfolio success (Zaman et al. 2020).

As project governance is proven to influence project success (Joslin & Müller 2016; Müller et al. 2017), and the average

project success is associated with project portfolio success, a relationship between governance and project portfolio success may be assumed. This assumption is further supported by Ul Musawir et al. (2020:4) who state that regardless of the level of governance and scope, the fundamental purpose of governance, which is to 'define the objectives of organisational projects, provide the means to achieve those objectives, and control progress', remains the same. In light of the critical role of governance on decision-making about PfM and the relevant established relationships, the following hypothesis is established:

H1: There is a positive relationship between governance and project portfolio success.

Governmentality

Overview of governmentality

As alluded to by Müller et al. (2014):

> [*I*]t is not enough to only have the regulatory elements in place, the willingness, trust and ability to adopt them both at the top management and the organisational level are needed. (p. 840)

Governmentality is derived from two words, *governance* and *mentality*, describing the perspective of governing actors about governance (Dean 2010).

Clegg et al. (2002:2) define governmentality as the 'strategies of organisational governance and self-governance by those who are made subjects of organisational governance', while Müller et al. (2015:841) define governmentality as 'the way to govern'. However, both sources 'agree' that governmentality describes how governance is structured within the organisation.

The culture of the organisation about governance points is established by how (Dean 2010; Müller 2019):

- Organisational senior management perceives governance.
- Senior management's verdict about governance is promoted within the organisation.
- Governance is enforced and monitored within the organisation.
- The rest of the employees and key allies of the organisation perceive governance.

Together these issues give an indication of what the culture of the organisation is regarding governance (Dean 2010). The commitment of the organisation to governance is vital for the success of the project portfolio (Clegg et al. 2002). The outlook and commitment of senior management regarding governance must be embedded to the entire organisation in order to enable achievement of the expected benefits from the organisational project portfolio investments (Müller et al. 2016a). Constant senior management support, coupled with the appropriate governance mechanism, can be used as a formula to communicate and enforce the anticipated level of understanding and commitment regarding governance from all stakeholders (Müller et al. 2015).

Evidence from the literature shows the following shared understanding regarding the principles of governmentality: (1) organisational leadership should show commitment and support for governance (Clegg 2019; Dean 2010; Müller 2019; Müller et al. 2014). (2) Leadership view and commitment regarding governance approach and precept should be clearly communicated and embedded in the organisational culture (Clegg 2019; Dean 2010; Müller 2019; Müller et al. 2014). (3) Decision-making relating to PfM should be aligned with the formalised governance framework (Dean 2010; Müller 2019). (4) Governance should be obligatory and monitored (Dean 2010; Müller 2019; Müller et al. 2014). (5) There should be commitment to and compliance with governance by all stakeholders (Dean 2010; Müller 2019; Müller et al. 2014). These five aspects were adopted in this study to measure the extent of governmentality within organisations.

Governmentality and project portfolio success

The success of project portfolio is dependent not only on governance but also on its implemented governance strategies, commitment to these governance strategies and the culture of the organisation about governance (Clegg et al. 2002; Müller et al. 2015, 2017). Organisations are beginning to view governance and governmentality as two inseparable elements (Müller et al. 2015). Müller et al. (2016b) view governmentality as the tone setter for governance. They state that governance provides the mechanisms for managing the project portfolio, while the regulation and enforcement of these mechanisms is supplied by governmentality. The absence of or inadequate organisational support is identified as a hindrance to project portfolio success (Naik & Kharat 2018; Nyandongo & Mshweshwe 2017). The organisational support component is linked to governmentality, as it speaks to the mentality or culture of the organisation about governance. The complete commitment and backing of the senior management are also identified to be the determinants of project portfolio success (Marnewick 2015; Oostuizen et al. 2018).

Furthermore, Müller et al. (2017) depict a positive link between governmentality and organisational success, and a further positive relationship between governmentality and project success. As a result of the interrelationship between various governance spheres, this study transcends the findings of Müller et al. (2017) to the project portfolio realm, thus leading to hypothesis 2:

H2: There is a positive relationship between governmentality and project portfolio success.

Research methods and design

The underlying philosophies for this study were objectivism ontology and critical realism epistemology. As with positivism, critical realism believes in the existence of truth that is independent of the researcher's interpretation and behaviour (Erasmus 2020). Nevertheless, realists do not rule out the human prejudice resulting from our inborn ideological imperfections and the other underlying forces and processes

that are beyond human control (Greener & Martelli 2020). A deductive approach and a quantitative method were chosen in this research to test the two hypotheses. Quantitative data were collected through a cross-sectional survey from South African-based organisations.

The target population for this study was all forms of organisations in South Africa that exercises the discipline of PfM. The target individuals within these organisations were a minimal of 100 respondents who pose a sound knowledge of PfM and governance. The sample size was assumed from the chosen research philosophies and strategies. As rightfully stated by Williamson and Johanson (eds. 2017:360), 'if a broad picture is desired, a large sample is required in order to be able to generalise to the chosen population'. This research used both purposive and snowball sampling. The purposive choice was informed by aspects such as the proficiency and experience of the participants in the area that was researched (Saunders, Lewis & Thornhill 2019). Snowball sampling was selected to enable referrals to the participants who had the required skills and experience with PfM and governance (Chan 2020).

Data collection

A structured questionnaire with closed-ended questions was developed from the literature review relating to governance, governmentality and project portfolio success. The questionnaire commenced with a screening question, followed by four sections, namely demographics (four items), PPG (six items), governmentality (five items) and project portfolio success (six items). The three constructs (governance, governmentality and project portfolio success) were measured through a five-point Likert scale from 'strongly disagree (1) to strongly agree (5)'. The survey questionnaire was designed and hosted on Google Forms. The questionnaire was piloted with 10 respondents prior to the formal collection of data. The results of the pilot study were helpful in the refinement of the questionnaire. The pilot results were excluded from the analysis of this study.

The email and WhatsApp messages containing the hyperlink to the internet survey questionnaire were sent to the first identified respondents, including reputable project management organisations such as Project Management South Africa (PMSA) and PMI South Africa. In line with the snowball sampling technique, respondents were encouraged to recommend other respondents who might be of relevance to the study. The respondents are from the South African-based organisations. After eight weeks, the survey was closed and the data were downloaded from Google Forms.

Data analysis

A total of 109 online responses were received. Upon the use of Microsoft Excel analysis tools, it was established that one respondent did not consent to participate in the study. This record was removed from the results, leaving a total of 108 responses for analysis. The questionnaire introduced a screening question to ensure that the participants met the set criteria (Kabir 2016). This was critical, especially with an online survey. In the context of the qualifying criteria of the study, participants were asked to indicate their level of involvement in PfM or governance. A total of four participants who answered 'not involved' were excluded from the survey. The remaining 104 responses were sufficient, as the minimum sample size for this study was 100 valid and usable responses.

The methods applied by the researcher to analyse data are largely reliant to the type of data collected, research questions and hypotheses (Oostuizen et al. 2018). This study followed a quantitative approach and therefore applied the two most commonly used methods for analysing quantitative data, namely descriptive and inferential statistics (Coldwell & Herbst 2004; Kumar 2018). The quantitative validity was tested through the exploratory factor analysis while reliability was tested through Cronbach's alpha (Pallant 2020). This study applied the statistical analysis package, SPSS 29.

Ethical considerations

An application for full ethical approval was made to the University of Johannesburg Department of Applied Information Research Ethics Committee and ethics consent was received on 16 February 2023. The ethics approval number is 2023AIS002.

Results

Descriptive statistics

Demographics

The demographics section consisted of four questions aimed purely at determining the representativeness of the sample. The profile of the respondents included the type of organisation, industry classification, departmental classification and experience of participants in PfM and governance. The majority of the respondents were from the government entities (44.2%), classified as financial intermediation, insurance, real estate and business services (61.5%), within the process or product design and management department (38.5%) having 5–10 years (29.8%) of experience.

Governance, governmentality and project portfolio success

The respondents were asked to indicate on the Likert scale to which extent they 'agree' with each provided statement construct regarding their organisations. The descriptive results relating to governance, governmentality and project portfolio success were consolidated and is presented in the form of a frequency mean in Table 1. Most responses relating to the measure of governance were on the 'agree' side. It is also gratifying to see that this pattern was found in all the items relating to this variable. However, item B6.6 that measures existence of formalised governance framework received the lowest average rating of 3.89, which was below the 'agree' side. Although the rating was below 4, the rating is

closer to 'agree' (4) than 'neutral' (3). Hence, the respondents are neutral with a strong tendency towards agreement (as rating is higher than 3.5). On average, all the items for governmentality scored below the 'agree' measure. The highest mean was 3.95, which was slightly below the 'agree' score. This rating relates to item C7.1, which measured whether governance received strong support from the leadership of the organisations. Although the results indicate a lack of agreement, the fact that the rating is above 3.5 indicates a strong tendency towards agreement.

Similar to the governmentality results, Table 1 shows that for project portfolio success, only one item (D8.1) falls on the 'agree' side. The majority of respondents agreed that their organisational project portfolios are aligned with the organisational strategy and goals (4.20). Further analysis of the frequency table reveals that most participants were unsure about the success rate of their organisational project portfolios. Although the results indicate a lack of agreement, the fact that the rating is above 3.5 indicates a strong tendency towards agreement.

The dispersion of the 17 items' values around the mean is another vital aspect of the results in Table 1. For all three factors, the deviations are slightly less than one unit from the mean. These dispersions are gratifying because they exhibit a reasonably consistent distribution and dependable results (Greener & Martelli 2020).

Exploratory factor analysis (validity)

The suitability assessment was conducted to confirm the suitability of the data for factor analysis. This study observed the following guidelines regarding this assessment (Leech, Barrett & Morgan 2015; Pallant 2020): correlation between items: $r > 0.3$ (this also includes communalities), Kaiser-Meyer-Olkin measure of sampling adequacy: KMO values > 0.6, and Bartlett's test of sphericity: $p < 0.05$.

Independent variables: Governance and governmentality: The analysis of the correlation matrix for the independent variables reveals that all 11 items for the two variables surpassed the recommended values. According to the correlation matrix results, the lowest results for governance and governmentality were 0.562 and 0.731, respectively. Jointly, the two variables showed a KMO value of 0.913 and the p-value is < 0.001. These results confirm the factorability of the data for these two independent variables. Principal axis factor analysis with varimax rotation was applied to measure the base structure for 11 items of the independent variables. After rotation, these two variables explained 37.82% and 35.5%, respectively. Together, these variables or factors accounted for 73.2% of the variance in the project portfolio success. As illustrated in Table 2, all 11 items measuring governance and governmentality were successfully loaded and perfectly grouped as expected.

Dependent variable: Project portfolio success: According to the correlation matrix scores, all items exceeded the recommended value of > 0.3 with the lowest correlation of 0.372 (C7.4 governance is enforced and monitored within the organisation). The KMO for this variable is 0.853 and the p-value is < 0.001. These results attest to the suitability of these variable items for factor analysis. Like the independent variables, the six items of project portfolio success loaded successfully with the loaded factor of 0.679. Therefore, no item was dropped. Table 3 indicates the rotation and communalities' results for project portfolio success.

The lowest communality for the dependent variable was 0.461 (D8.2 value maximisation). For this factor, no rotation was conducted as only one factor (project portfolio success)

TABLE 1: Frequency mean for all factors ($N = 104$).

Measures	Mean	Std. deviation
6. Governance:		
B6.5 PfM guidelines, policies, and procedures.	4.10	0.990
B6.1 Governance structures.	4.07	0.792
B6.2 Roles and responsibilities.	4.04	0.934
B6.4 Governance functions.	4.02	0.870
B6.3 Governance processes.	3.98	0.945
B6.6 Governance framework.	3.89	0.954
7. Governmentality:		
C7.1 Leadership support and commitment to governance.	3.95	0.959
C7.4 Governance enforcement and monitoring.	3.79	0.910
C7.5 Governance compliance by all stakeholders.	3.79	0.992
C7.2. Shared governmentality perspective (culture).	3.78	0.965
C7.3 PfM decision alignment with governance framework.	3.71	0.972
8. Project portfolio success:		
D8.1 Strategic alignment.	4.20	0.793
D8.6 Future preparedness.	3.86	0.886
D8.2 Value maximization.	3.84	0.871
D8.4 Aggregate success of project portfolio components.	3.84	0.790
D8.5 Use of synergies.	3.83	0.806
D8.3 Balance.	3.76	0.919

PfM, project portfolio management; Std., standard.

TABLE 2: Independent variables rotated factor matrix.

Governance and governmentality measures	Factor		Communalities
	1	2	
B6.2 Roles and responsibilities.	0.831	0.373	0.829
B6.5 PfM guidelines, policies, and procedures.	0.827	0.345	0.803
B6.3 Governance processes.	0.784	0.393	0.770
B6.4 Governance functions.	0.724	0.439	0.717
B6.6 Governance framework.	0.720	0.339	0.634
B6.1 Governance structures.	0.655	0.267	0.500
C7.1 Leadership support and commitment to governance.	0.307	0.810	0.750
C7.2 Shared governmentality perspective (culture).	0.352	0.802	0.768
C7.5 Governance compliance by all stakeholders.	0.382	0.795	0.779
C7.4 Governance enforcement and monitoring	0.403	0.772	0.758
C7.3 PfM decision alignment with governance framework.	0.409	0.763	0.749

Note: Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalisation.[a]

[a], Rotation converged in 3 iterations.

PfM, project portfolio management.

was loaded. The loaded variable accounted for 57.6% of variances. All in all, the empirical results and theoretical results were similar and no item was dropped. This implies that all the six items passed the validity measures.

Reliability

The Cronbach's reliability test was performed to measure the reliability of the scale. According to literature, the Cronbach's alpha should be greater than 0.7 to be acceptable (Greener & Martelli 2020; Leech et al. 2015). All three constructs surpassed this criteria with the following results: governance (0.934), governmentality (0.940) and project portfolio success (0.899). This evidence demonstrated the reliability of the scale. Based on the results for both validity and reliability, the questionnaire was rendered valid and reliable.

Inferential statistics

Multiple correlation analysis

The relationships between governance, governmentality and project portfolio success were assessed through multiple correlations. Prior to conducting the correlation tests, preliminary analyses were conducted to ascertain no violation of the assumptions of normality and linearity. The normality tests revealed one outliner. The outliner was removed from the data set. Therefore, the data set was revised to 103 response cases. The multiple correlation results are presented in Table 4. This study adopted the guidelines relating to the measure of relationship (Leech et al. 2015; Pallant 2020).

As indicated in Table 4, the results of governance support the proposed hypothesis 1 (there is a positive relationship between governance and project portfolio success) with a strong positive correlation of $r = 0.597$ and a significant correlation of $p < 0.001$. These results confirm observations by other scholars (Irfan & Hassan 2019; Ul Musawir et al. 2017; Waseem et al. 2022; Young et al. 2020). Moreover, the results correspond with the outcome of a similar study that was conducted at the project level (Joslin & Müller 2016). It is discernible from these comparable results that governance is an enabler to all forms and levels of management, and therefore it is critical to success.

Table 4 results further confirmed the proposed governmentality hypothesis (there is a positive relationship between governmentality and project portfolio success). The governmentality results illustrate a strong positive correlation of $r = 0.794$ and a significant correlation of $p < 0.001$. The governmentality results are consistent with the results of Müller et al. (2017), which was conducted at the project level. The finding is also similar to the results of Unger, Rank and Gemunden (2014) that proved a link between corporate culture and project portfolio effectiveness.

The governance and governmentality results indicate that both independent variables correlate significantly with the dependent variable. The outcome of the results proved that a multiple regression analysis could be conducted to test the effect of governance and governmentality on project portfolio success.

Multiple regression analysis

The ability of governance and governmentality to predict project portfolio success was assessed through the multiple regression, which is a common statistical measure for this purpose (Leech et al. 2015). Prior to conducting the regression, assumptions of linearity, normality and multicollinearity were checked and met as per the recommendations (Leech et al. 2015; Pallant 2020). The results are presented in Table 5.

This study opted to use the adjusted *R* squared for better estimates due to the relatively small sample size of 103 (Leech et al. 2015; Pallant 2020). The adjusted *R* square value of 0.627 denotes that governance and governmentality jointly accounted for 63% of the variation in project portfolio success. This is considered a large effect (Leech et al. 2015).

Analysis of variance (ANOVA) was used to assess the significant difference between the independent variables (Greener & Martelli 2020). The ANOVA results indicated that the combination of governance and governmentality

TABLE 3: Dependent variables rotated factor matrix.[a]

Project portfolio success measures	Factor: 1	Communalities
D8.5 Use of synergies	0.847	0.717
D8.4 Aggregate success of project portfolio components	0.785	0.616
D8.1 Strategic alignment	0.781	0.610
D8.3 Balance	0.740	0.547
D8.6 Future preparedness	0.710	0.504
D8.2 Value maximisation	0.679	0.461

Note: Extraction method: Principal axis factoring.
[a], 1 factor extracted; 5 iterations required.

TABLE 4: Multiple correlations ($N = 103$).

Variables	Project Portfolio Success	Governance	Governmentality
Pearson correlation			
Project Portfolio Success	1.000	0.597	0.794
Governance	0.597	1.000	0.694
Governmentality	0.794	0.694	1.000
Sig. (1-tailed)			
Project Portfolio Success	-	0.000	0.000
Governance	0.000	-	0.000
Governmentality	0.000	0.000	-
N			
Project Portfolio Success	103	103	103
Governance	103	103	103
Governmentality	103	103	103

Sig, significance level one-tailed test.

TABLE 5: Multiple regression analysis results for uncontrolled factors.

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
Model summary[b]				
1	0.796[a]	0.634	0.627	0.412

[a], Predictors: (Constant), governmentality, governance; [b], Dependent Variable: project portfolio success.
Std., standard.

significantly predicts project portfolio success ($p < 0.001$). These results support the study of Müller et al. (2017) at project level. Table 6 indicates which variable between governance and governmentality is more significant in predicting project portfolio success in a controlled environment.

According to this assessment, governance is no longer a predictor of project portfolio success because its *p*-value is above the 0.05 level of significance (Leech et al. 2015; Pallant 2020). Based on the results, governmentality is proven to be statistically significant to project portfolio success, $p < 0.001$. The standardised coefficient values indicate that governmentality predicts 73% (0.733) of variances in project portfolio success. As stated earlier, this is considered a large effect (Leech et al. 2015). These findings endorse the reasoning by Müller et al. (2015) that governmentality is an enabler of governance. The results also coincide with the findings of the study by Dean (2010) that governmentality influences the structure of governance and its development.

Discussion

Descriptive measures

A mean of 3.89 for governance framework measure (Table 1), indicates that organisations were lacking in terms of implementing their governance frameworks when compared to other governance measures which are all above the 'agree' score. Based on the shared sentiments of scholars relating to the value of a governance framework (APM 2012; ISO 2017; PMI 2016; Simard et al. 2018; Young et al. 2020), it is a concern that organisations are found wanting in this measure. All these scholars concur that the implementation of a governance framework is vital to provide direction, control and standardisation within organisations. The highest emerging mean of 4 in Table 1 indicates that governance is well established within organisations as the majority of responses show agreement with these governance measurement items. Be that as it may, a perplexing question is how these organisations find it feasible to implement other governance measures without having formally instituted PPG frameworks. What makes this incomprehensible is that the majority of these governance components should be defined within the governance framework.

Table 1 shows that on average all the items for governmentality scored below the 'agree' measure. The highest mean is 3.95. This rating relates to item C7.1, which measured whether PPG received strong support from the leadership of the organisation. The contributing factor for these low ratings for the governmentality construct may be attributed to the high mean ratings under 'neither disagree nor agree'. Unlike with the governance construct, most respondents seemed to be uncertain about the status of governmentality within their respective organisations. Based on these results, organisations are still faced with challenges of promoting and enforcing governmentality principles. According to the literature (Müller et al. 2017; Turner 2020), although governance and governmentality are two concepts, these two concepts are intertwined.

As shown in Table 1, five out of six items' measures relating to the project portfolio success variable reveal that organisations experienced challenges relating to PfM. This is in line with the literature review, which also highlighted this challenge (Costantino et al. 2015; Geng et al. 2018; Kock et al. 2020; Naik & Kharat 2018; Oostuizen et al. 2018). The responses relating to measurement that evaluates alignment between project portfolio and the organisational strategy and goals show that this alignment does exist, as this measure recorded a 4.2 mean rating. This is contradictory to the literature findings which point out that organisations are still battling with this aspect (Naik & Kharat 2018; Oostuizen et al. 2018; Wiersma 2017). This disparity may be attributed to the fact that this observation was last made in 2018 according to the literature review. If this is the case, it may mean a step in the right direction is being taken. However, according to the displeasing results relating to this critical variable, this variable requires considerable attention. Table 7 shows the aggregated descriptive responses for governance, governmentality and project portfolio success.

The analysis of the minimum and maximum columns of Table 7 shows that the whole scale was used. What is also evident in Table 7 is that governance is the only variable with the mean slightly above 'agree' (4.0160). The implication of this finding is that governance in the realm of project portfolio is now gaining momentum. Unlike with governance, both governmentality and project portfolio success ratings are slightly below 'agree'. Looking at these ratings holistically with the frequency distribution scores for both variables, it can be appreciated that these ratings are not necessarily

TABLE 6: Regression (controlled factor).

Model		Unstandardized coefficients		Standardised coefficients (β)	*t*	Sig.
		β	Std. Error			
Coefficients						
1	(Constant)	1.252	0.228	-	5.492	0.000
	Governance	0.078	0.075	0.088	1.048	0.297
	Governmentality	0.603	0.069	0.733	8.720	0.000

Std., standard; Sig., significance.

TABLE 7: Frequency results overall score for all factors.

Factors	*N*		Mean	Median	Std. deviation	Minimum	Maximum
	Valid	Missing					
Statistics							
Governance	104	0	4.0160	4.0000	0.79457	1.17	5.00
Governmentality	104	0	3.8038	4.0000	0.86214	1.00	5.00
Project Portfolio Success	104	0	3.8862	4.0000	0.67601	1.17	5.00

Std., standard.

disagreeable. Firstly, the governmentality of projects is not such a renowned dimension and still needs to be theoretically positioned within organisations. Secondly, it would have been concerning if the results were closer to the 'disagree' measure, but this is not the case with any of these variables. Thirdly, it is important to acknowledge that although the means were below 4, the means were closer to 4 than to 3. Hence, the respondents may not be totally neutral but will have a greater tendency towards agreement.

Relationship measures

In their individual capacity, both governance and governmentality have proven strong relationships to project portfolio success. As illustrated in Table 4, governance showed a strong positive correlation of $r = 0.597$ and a significant correlation of $p < 0.001$, whereas governmentality showed a strong positive correlation of $r = 0.794$ and a significant correlation of $p < 0.001$. These results are welcome as they proved the two hypotheses relating to the positive effect of each of these independent variables on project portfolio success. The results coincide with the findings of other studies performed at project level (Joslin & Müller 2016; Müller et al. 2017; Unger et al. 2014).

These results support those of Turner (2020), who discovered that good governance improves decision-making and thus better project performance. Müller et al. (2016a) and Turner (2020) provide insights into how governmentality influences the environment and thus decision-making and better performance.

In relation to their effects on project portfolio success, the multiple regression analysis results show that when combined, both governance and governmentality indicated a significant ($p < 0.001$) relationship to project portfolio success. Together they predicted 63.4% of the variation in project portfolio success. These results are also parallel with the findings by Müller et al. (2014, 2016b) and Turner (2020) that governance affects decision-making and Müller et al. (2016a) that governmentality affects environment and ultimately decision-making.

When put in a controlled environment, governance on its own is not statistically significant to project portfolio success ($p = 0.297$). Interpreted together with the correlation results, it means that although governance relates to project portfolio success, it is not a predictor of project portfolio success unless used with other variables such as governmentality. This finding was not expected as it is contradicting the results of Joslin and Müller (2016) and Müller et al. (2017), although their findings were at project level. However, this finding proves the importance of governmentality. According to Turner (2020:675), 'culture influences decision making in organisations, and so governance will have an impact on decision making via culture. Culture influences behavioural norms, judgment norms, perception of risk, and risk choices'. These statements by Turner (2020) were found to be important and relevant to this study as, in essence, the perception of the organisation about governance determines the success of the governance mechanisms and ultimately the performance of the project portfolios. The frequency results of this study show that most organisations have governance mechanisms in place. However, numerous responses show uncertainty about the emphasis of governance and the level of project portfolio success. Therefore, on aggregate, the results for these constructs were below the 'agree' scale (see Table 7).

Unlike with governance, the regression results in Table 6 between governmentality and project portfolio success proved governmentality as the only variable that is statistically significant for project portfolio success ($p < 0.001$). This finding of governmentality being the sole predictor of project portfolio success in a controlled environment was inconsistent with the finding by Müller (2019), which was made at project level. According to Müller (2019:10), 'neither governance nor governmentality alone are most decisive for performance, it is their interaction and particular combination that impacts project performance'. Even so, this finding endorses the reasoning by Müller et al. (2015) that governmentality is an enabler of governance. The results also coincide with the findings of the study by Dean (2010) that governmentality influences the structure of governance and its development. In 2017, Müller et al. conducted a similar study at project level and found that all the governmentality precepts were related to project portfolio success. The results of this study demonstrate the importance of governmentality for the success of project, project portfolio and the organisation at large. Project practitioners and organisations involved in the project portfolio practices should learn from these results and promote a culture that embraces and upholds good governance.

Limitations

Firstly, the study was limited to the South African organisations. Secondly, the respondents are largely from the 'financial intermediation, insurance, real estate and business services' industry. Thirdly, this study tested the overall relationships between the variables instead of testing these relationships at detail level, such as governance mechanisms and governmentality principles. Finally, although the results of the study bear out that both governance and governmentality impact on project portfolio success, the degree of correlation between these variables needs further exploration.

Implications or recommendations

The implication of the governance results for organisations is that governance is an enabler to all forms and levels of management, and therefore it is critical to the organisational success. The implication of the overall findings for organisations is that every governmentality improvement will benefit the project portfolio performance. Therefore, organisations that improve their governmentality will see an improvement in their project portfolio success. This implies that organisations should invest in practices that would result in an improvement of their governmentality posture if they were to succeed in the management of their project portfolio.

This includes the following: (1) organisational leadership should show commitment and support for governance. (2) Leadership view and commitment regarding governance approach and precept should be clearly communicated and embedded in the organisational culture. (3) Decision-making relating to PfM should be aligned with the formalised governance framework. (4) Governance should be obligatory and monitored. (5) There should be commitment to and compliance with governance by all stakeholders.

Future research

In South Africa, a study that reflects a fair industry representation is recommended. Similar studies that expand the research to other countries or even globally may be beneficial. In addition, studies that expand the findings to lower levels may be useful. For governance, this may be a study that does not only test the overall impact; a detailed study could test the impact of each governance mechanism on project portfolio success. For governmentality, this may be a study that tests the relationship at principle level to see whether all the governmentality principles do in fact impact on project portfolio success. There is an opportunity to strengthen the findings by exploring the degree of correlation between these three variables, i.e. governance, governmentality and project portfolio success.

Conclusion

The research was incited by the critical role of governance and governmentality, especially in organisations that run multiple projects and programmes concurrently. This study hypothesised the effect of governance and governmentality on project portfolio success. In its nature, the project portfolio carries the initiatives that lets organisations implement their strategies. Proper implementation of PfM processes should help organisations to steer their project portfolios towards the intended benefits. However, there are constant challenges to be navigated throughout the lifespan of these project portfolios before success can be realised. It is clear from the variety of sources that management of the project portfolio is an enormous and rigorous task that requires extra vigilance and robust governance mechanisms. It is in the light of this complexity that organisations should follow strict measures to ensure that proper PfM processes are established, implemented and monitored.

All forms of governance seek to regulate control of the aspect that is governed. As governance provides the framework for decision-making, it enables achievement of the project portfolio strategy and, ultimately, the organisational strategic goals. The findings of this study have shown a strong positive relationship between governance and project portfolio success. Like governance, governmentality shows a strong positive relationship with project portfolio success. What is evident from both governance and governmentality is that they are both essential for the efficiency and effectiveness of the project portfolios. Once properly instituted and monitored, these concepts will undoubtedly eliminate or lessen the project portfolio challenges. With regards to the effect of these variables to project portfolio success, the results show governmentality as the key predictor of project portfolio success. This implies that organisations should invest in practices that would result in an improvement of their governmentality posture if they were to succeed in the management of their project portfolio.

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The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

Authors' contributions

J.S.M. was responsible for the model design and the final article. K.M.N. and S.D. supervised the study towards J.S.M.'s Masters' degree. K.M.N. and S.D. also reviewed the article.

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Data availability

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