

Executive sponsor attributes and megaproject Success

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Abstract

Megaprojects are failing at a rate that affects national economies as well as millions of people. The role of the executive project sponsor is merely one of the decisive factors in the success of these projects, but it is still much neglected in project management literature. This paper investigates attributes required by executive sponsors of megaprojects. The paper reports on the perceptions of 26 executives who played key roles in six recently completed megaprojects. The findings include essential attributes that an executive sponsor should have in order to improve the probability of a megaproject's success. The single most significant attribute is seniority and power.

Keywords: megaproject; executive sponsor; sponsor attributes; megaproject success.

Biographical notes

Willem Louw is an industry practitioner who retired in 2011 after 26 years service in primarily the technology/technical business unit of a global petrochemical company (Sasol) in the oil and gas industries. During this period he was integrally involved in the controls, engineering and project management of a significant portfolio of medium to megaprojects. He graduated in civil engineering, thereafter obtained a Master's degree in Civil Engineering with specialisation in construction management and completed a PhD in 2020 on the role of the executive sponsor in megaproject success, all from the Stellenbosch University in South Africa.

Herman Steyn has been involved in projects since the 1970s and is a Professor of Project Management at the Graduate School of Technology Management at the University of Pretoria, South Africa. His academic interests include a variety of project management related topics as well as strategy implementation via projects.

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Wim Gevers is a Professor Emeritus at the University of Stellenbosch Business School (USB). He graduated in civil engineering from the University of Cape Town and then worked as bridge design engineer for seven years. A year after obtaining an MBA from the University of Stellenbosch he joined their faculty and completed a PhD in Finance. He still teaches decision making on the MBA programme of the Business School. His research has focussed on models for decision making and stock market behaviour. He was an Associate Director of the Business School for a period of 16 years during which time he was part of the management team that lead the USB to triple accreditation.

1 Introduction

This paper investigates the attributes required by executive sponsors of megaprojects as identified primarily from an exploratory survey questionnaire, administered to 26 executives involved in six megaprojects.

The global drive for investment by government as well as the private sector in infrastructure development is continuing unabated. Such investments often result in the implementation of megaprojects. The influence of these megaprojects is not only financial, but they also have a direct influence on the well-being of the society that they are intended to benefit. The value generated by these investments is therefore extremely important, although the projects are often driven by ambitious and unrealistic goals. Megaprojects are unfortunately failing at a rate that affects the economies of countries. Accordingly, millions of people are affected. It has become clear that enhanced attention to management practices is required to ensure that the economic growth and societal change that are foreseen indeed materialise. The solution in dealing with failed megaprojects partly resides in management practices that deliver intangible benefits.

It has been well documented that sponsors play a very important role in projects in general, but literature on the required attributes of megaproject sponsors is sparse. This paper provides empirical information about the importance of specific attributes required of megaproject sponsors, obtained from executives with approximately 250 years of cumulative megaproject experience.

Despite the importance of the sponsor, there is minimal guidance available to boards or executive management that are responsible for the appointment of megaproject sponsors. This paper investigates the perceptions of a number of executives and senior managers who acted either as an executive manager who is responsible for the selection of a megaproject sponsor, a megaproject sponsor, or as a megaproject manager. To ensure a balanced perspective, both successful and failed megaprojects are included in the study.

The research methodology included a pilot case study, interviews, questionnaires and a focus group activity. This paper reports on differences and commonalities between

1. public and private sector projects
2. the views of executive management, sponsors and project managers
3. successful and failed projects as they relate to the identification of megaproject sponsor attributes.

1.1 Problem statement and gap

The problem statement for the research is multi-faceted and revolves around the very poor track record of global megaprojects, and the fact that literature on the required attributes of

megaproject sponsors is sparse. The sponsor attributes identified in previous research are also so wide in nature that it is unlikely that all these attributes will be found in a single person. It is therefore required to identify certain specific attributes that are more important than others and which are considered essential for project success.

This paper provides empirical information about the importance of specific attributes required of megaproject sponsors, obtained from executives with approximately 250 years of cumulative megaproject experience.

1.2 Megaprojects

The investments by government, as well as the private sector in infrastructure development, were often implemented using megaprojects [projects with a cost of greater than US\$1 billion (Drouin, 2018)] as the vehicle of delivery. The influence of these megaprojects was not only financial, but they also had a direct influence on, for example, the growth of national economies and improvement in the quality of life for individuals (Fischer and Amekudzi, 2011; Flyvbjerg, 2014). Unfortunately, the rate of failure of megaprojects was to such an extent, that it affected national economies as well as millions of people (Merrow, 2011; Flyvbjerg, 2014).

Improved attention to management practices was *inter alia* required, to ensure that the growth in economies and changes in societies that were foreseen from megaprojects, did indeed materialise (Drouin, 2018). The management practices that were referred to included the delivery of intangible benefits, for example, social capital enhancement (Bornstein, 2010). Such social capital comfortably provided for the concepts ‘megaproject team’ and the ‘executive sponsor’ in the definition.

The very important role played by sponsors in projects in general, has been well-documented [Association for Project Management (APM), 2018; Morris, 2013; Barshop, 2016; Project Management Institute (PMI), 2014]. The effectiveness of the sponsor being ‘the best single predictor of project success or failure’ [APM, (2018), p.4], stressed the importance of the sponsor. Additionally, the view that the personal attributes of sponsors directly influenced their effectiveness was equally well documented (Helm and Remington, 2005; Crawford et al., 2008; APM, 2018; West, 2010; Remington, 2011; Morris, 2013; PMI, 2014; Barshop, 2016).

As referred to in the introduction, the guidance available to boards or executive management responsible for the appointment of megaproject sponsors, was minimal (PMI, 2014; APM, 2018).

Flyvbjerg (2014) described a megaproject as a large-scale, complex venture that typically cost US\$1 billion or more, took many years to develop and build, involved multiple public and private stakeholders, was transformational, and affected millions of people.

PMI (2014) stated that executive sponsors were primarily allocated to projects of strategic importance that were complex, carried a certain degree of risk, were very discernible, and were allocated very sizeable budgets. Accordingly, it could be deduced that a megaproject sponsor was from the executive (most senior) ranks within an organisation. For the remainder of the paper, the term *sponsor* implies an executive sponsor.

Similarly, the term *project* includes the descriptors *project based program* and *megaproject*, and the term *project manager* includes the descriptors *project director*, *program manager* and *program director*.

1.3 The rate of megaproject failures

Merrow (2011) indicated that 65% of industrial megaprojects failed to meet business objectives in all three the dimensions: cost, schedule, and operability, and defined success as ‘a lack of failure’. If a project performed worse than the threshold of any of the criteria used by Merrow (2011), it was classified as a failure. If a project did not experience any of the three dimensions as a problem, it was classified as a success.

Flyvbjerg (2014, 2017) stated that about 10% of megaprojects were completed within budget, about 10% were on schedule, and about 10% delivered the promised business benefits.

Various authors expressed the view that a project should not only be evaluated on results at project completion or shortly afterwards. The potential that it offered in achieving desired business objectives and generating new business or future opportunities should also be considered (Pinto, 2004). This view was supported by Shenhar et al. (2002), Kloppenborg et al. (2006), The Office of Government Commerce (OGC) (2007), Sewchurran and Barron (2008) and Turner and Zolin (2012). To date, the dimension of delivering promised benefits over the longer term (as motivated by the cited authors), has triangle’ of delivering the promised benefits within budget and on time [Flyvbjerg, (2017), p.11], still ruled the discourse on project success – megaprojects included. The criteria for the success or failure of megaprojects were accordingly limited in this paper to the ‘triple constraint’ notion of time, cost, and operational performance (promised benefits), as described by Merrow (2011).

1.4 The role of the executive sponsor on megaprojects

In defining the term sponsor/sponsorship, significant work was done by Crawford et al. (2008), in reviewing four national and organisational standards for project management.

Despite an inconsistency among the standards mentioned above about how the role of the sponsor was carried out (by either an individual or a group), the similarities were quite clear and five key themes emerged. The sponsor was:

- At a senior level in the owner (a.k.a. ‘client’ or ‘customer’) organisation.
- In a role involving substantial dimensions of leadership (as opposed to sponsorship being just a management role).
- Responsible for ensuring that an effective governance framework was created for the project.
- The ‘owner’ of the business case for the project, and ultimately responsible for the delivery or realisation of the benefits projected within the business case.
- Positioned structurally on the interface between the owner and project organisations.
- This positioning enabled decision-making and support for the project manager, particularly for issues beyond his/her control.

Morris (2013, p.146) stated that the conduct of the sponsor “can arguably make him the single most influential ‘actor’ on the project, with a disproportionately high impact on outcome success”.

The APM (2018, pp.vii, 4) took an even broader view on the role of the sponsor by stating that the role was pivotal in the governance of project management and the broader on-going

success of organisations. Bourne (2015, p.125) was of the opinion that senior stakeholder support (specifically from the sponsor) was key to project success. Barshop (2016) viewed the sponsor as the one person accountable for the value that was to be delivered by the project, and he emphasised that this was a leadership role, while Turner and Müller (2006) also stated that sponsor engagement was decisive for project success.

The PMI (2012, 2013) emphasised the relationship between project success and active sponsors. Remington (2011) also accentuated the need, particularly within a megaproject context, for the sponsor to play a dedicated role.

1.5 Responsibilities and accountabilities

Where the sponsor or sponsorship was addressed in the project management literature, it was not only recognised that the sponsor role was a crucial component of any project, but also that the sponsor made a significant contribution to the success (or failure) of the project (Turner and Müller, 2006; Bryde, 2008; Crawford et al., 2008; APM, 2018; West, 2010; Remington, 2011; Morris, 2013; PMI, 2014; Bourne, 2015; and Barshop, 2016).

In addition to the OGC (2007) standards, Crawford et al. (2008), Remington (2011) and Nicholas and Steyn (2017) were quite specific in their reflections on *individual* vs. *group* – clearly there was a place for groups in the sponsorship role. Bryde (2008), however, stated specifically that the predominant trend in the literature was that the sponsor should be an individual. Additionally, reference to the sponsor as an individual, had also been identified in the work of the APM (2018), West (2010), Morris (2013), the PMI (2014), Bourne (2015) and Barshop (2016). The position in this paper, therefore, is that for a megaproject, an individual performs the sponsorship role, preferably on a full-time basis.

In order to broaden the understanding of the roles, responsibilities, or accountabilities of the project sponsor, the following approach was adopted:

An initial assessment (to test for duplication) was performed on the descriptors of the roles, responsibilities, or accountabilities identified, and used by the following authors or publications: Crawford et al. (2008), APM (2018), West (2010), Morris (2013), PMI (2014), Barshop (2016) and Nicholas and Steyn (2017).

Congruence in using the term ‘accountability’ of the sponsor among the sources above, was as follows:

- Owned the robust business case of the project: drove the realisation of its intended benefits and recommended cost/benefit opportunities.
- Provided direction by, among other things, developing a vision for the project; ensuring alignment of the project with company strategy; and building project team commitment to the project.
- Established values and created a value-based culture and environment that promoted success.
- Managed barriers or problems outside the remit and control of the project manager, to ensure the capture of the intended project value.
- Gave direction and clarified the framework for effective governance.

1.6 Attributes of the sponsor

While assessing the accountabilities of the sponsor indicated in literature, two themes were consistently identified. These themes created the theoretical framework that connected the research with the existing conceptual underpinning of the sponsor field.

Firstly, it was found that the effectiveness of the sponsor was the single best predictor of project success or failure (APM, 2018). Secondly, it was found that the personal attributes of the individuals who played the role directly influenced their effectiveness (Crawford et al., 2008; APM, 2018; West, 2010; Remington, 2011; Morris, 2013; PMI, 2014; Barshop, 2016). The relationship between the attributes of the sponsor, the effectiveness of the sponsor, and project success is, depicted in Figure 1.

Louw et al. (2018) developed from literature a list of 32 attributes required by an executive sponsor. An appraisal of these attributes may suggest that a single individual is unable to possess the full spectrum of attributes. Remington (2011) supported the view that all the required attributes were rarely found in one person, and she added that the right teams could possess all the attributes. Similarly, De Klerk (2014) reflected that the list of recommended characteristics (attributes) and traits prescribed in the literature, were unrealistically comprehensive and optimistic.

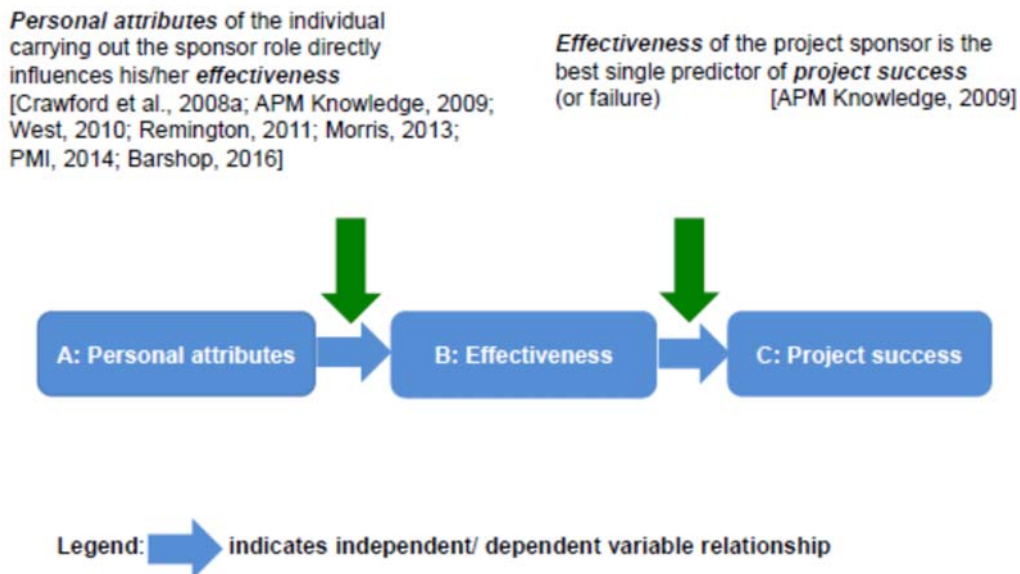


Figure 1 Relationship between personal attributes, sponsor effectiveness and project success

1.7 The sponsor as leader

Leadership is a distinct dimension of the sponsor profile (Barshop, 2016; Bourne, 2015; Crawford et al., 2008; PMI, 2018, Remington, 2011; Turner and Müller, 2006; Van Heerden et al., 2015; West, 2010). Leadership is also a distinct dimension in the role of the sponsor as described in the international standards reviewed by Crawford et al. (2008).

Louw et al. (2018) selected certain leadership styles for further evaluation, and concluded that the transformational and charismatic leadership styles were the preferred styles to be used in identifying an executive sponsor for a megaproject. Operationalised and validated assessment instruments supported both leadership styles. For transformational leadership it was the MLQ, based on the work of Bass and Avolio (1997), and referred to as the MLQ

Form 5X. For charismatic leadership it was the LBI, based on the work of Spangenberg and Theron (2002).

2 The objective of the study

This study investigates the relationship between the personal attributes of the individual appointed as sponsor, as listed by Louw et al. (2018) and how these attributes influence the sponsor’s effectiveness. It also explores the relationship between the effectiveness of the sponsor and project success.

This paper identifies attributes of an executive sponsor that are considered as either important but not essential or essential for project success. The results were obtained from a survey administered to 26 executives who were involved in six megaprojects. The contribution of this study is that it identifies project sponsor attributes that are considered essential or important, but not essential for project success.

3 Methodology

3.1 Conceptual framework

The conceptual framework for the empirical research, as depicted in Figure 2, consists of a number of propositions and exploratory research questions, derived from previous research by Louw et al. (2018).

Research aim	Research questions	Propositions
	How is the potential megaproject sponsor identified and appointed and what are the attributes that he/she should possess?	Sponsors need to be identified and appointed from executive/ senior management for megaprojects informed by the attributes they possess.
	How do professionals in the field rank the relative importance of the attributes of megaproject sponsors (assuming not all the attributes are equally important)?	All the attributes of a sponsor on a megaproject are not equally important when measured relative to each other.
To identify the important and essential attributes of a sponsor on a megaproject	Why are certain attributes of the sponsor on a megaproject defined as important?	Certain attributes of the sponsor on a megaproject are defined as important to be possessed i.e. critical for the sponsor to be effective in the role.
	Which important attributes of a sponsor on a megaproject are considered as essential for the project to be a success?	Certain important attributes of the sponsor on a megaproject are considered as essential i.e. if not possessed by the sponsor it could lead to project failure.
	Which psychometric and other tests can reliably assess important attributes of a potential megaproject sponsor?	The determination of which attributes a potential sponsor on a megaproject possesses can be performed with a full array of psychometric and other tests
	What should the level of active participation of a megaproject sponsor ideally be in order to make a decisive impact on the success of the project?	An active megaproject sponsor during the lifecycle of the project makes an essential contribution to project success.

Figure 2 Research aims, questions and propositions

The research questions are listed as follows:

- How is the potential megaproject sponsor identified and appointed, and what are the attributes that he/she should possess?
- How do professionals in the field rank the relative importance of the attributes of megaproject sponsors (assuming not all the attributes are equally important)?
- Why are certain attributes of the sponsor in a megaproject considered as important?

- Which important attributes of a sponsor on a megaproject are considered as essential for the project to be a success?
- Which psychometric and other tests can reliably assess important attributes of a potential megaproject sponsor?
- What should the ideal level of active participation be of a megaproject sponsor in order to make a decisive impact on the success of the project?
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Answers to the research questions identified important and essential attributes that an executive sponsor of a megaproject should possess. The identification of these attributes and their effective applications, should contribute to a higher probability of success in a megaproject.

3.2 Research methodology

3.2.1 Philosophical basis for the research

For the study an ontological approach of moving from a nominalist ('becoming') to a realist ('being') position during the lifecycle of the project, an epistemology of critical realism and a multiple case study methodology were selected (Morris, 2013; Yin, 2014; Merriam, 1998; Stake, 2005).

Sayer (2000) indicated that conceptually there were two types of research methodologies – extensive and intensive. The intensive methodology focused on the use of interviews with individuals in the context of the study and a qualitative analysis of the data obtained. It utilised causal groups (for example a focus group and a pilot case study) that produced explanations that were directed at the situation studied (Sayer, 2000). From Sayer (2000) it was deduced that multiple case study research (through interviews with the pilot case and focus group participants) could be considered as an intensive research methodology, and that it was also consistent with a critical realist epistemology.

A number of megaprojects from multiple sites were identified for possible selection for the study. An analysis was done of the presence of megaprojects (industrial and infrastructure) with a profit motive, using locally published databases. Ten projects met the US\$1 billion threshold for megaprojects as defined by Merrow (2011) and Flyvbjerg (2014). From the ten projects, six were selected, based on the accessibility to and availability of senior managers, consisting of three private and three public sector megaprojects, each with a value greater than US\$1 billion at the time of the sanctioning of funds. All were completed since 2006/2007. The six cases were within the range of four to 10 case studies required for multiple-case study research (Eisenhardt, 1989; Easton, 2010).

In South Africa, the public sector typically delivers infrastructure megaprojects, including those with a profit motive, while the private sector delivers industrial megaprojects. Examples of infrastructure projects included in the research are a pumped-storage hydro-electrical power plant, a multi-purpose pipeline, and a high-speed commuter rail network. Capital-intensive industrial mega-manufacturing projects are typically delivered by the private sector.

The primary form of data collection for the study was a survey, semi-structured interviews (supported by the survey questionnaire) for the pilot case study and also a focus group activity.

The survey questionnaires were conducted with the key individuals involved in the leadership and management of the projects, namely executive management or board, sponsor and project manager. By means of the survey, all the respondents were requested to assist in identifying the important and essential attributes that an executive sponsor should possess.

3.2.2 Pilot case study

A pilot case study was used to validate the appropriateness of the survey guide questions for the overall study, to fine-tune the plans for data collection, and to determine the effective line of questioning (Yin, 2014). These objectives were achieved. Given the relative infrequent occurrence of megaprojects, the project for the pilot case study was selected from the six projects forming the basis for the multiple-case study. The pilot case study consisted of an interview with the pilot case study participants. The same individuals that participated in the interviews for the pilot case study also completed the survey questionnaire mentioned above.

All the interviewees reflected that they considered the survey guide questions for the pilot case interview to be appropriate. However, some interviewees indicated a need for more questions to determine who would make a good sponsor, and how adequately the selected sponsor had been prepared for the role.

3.2.3 Survey questionnaire

The respondents to the survey questionnaire were all either executive managers with extensive managerial experience, or senior functional managers with extensive technical experience. The only exception was a senior human resources manager with extensive expertise in skills assessment. During their working careers they all gained megaproject experience either as megaproject manager, sponsor, or executive manager responsible for the appointment of the sponsor. They also had substantial experience of other large projects in their respective organisations.

The focus of the survey questionnaire was the identification of the attributes (both important but not essential, and essential) of a megaproject sponsor. Each survey respondent was requested to complete a questionnaire that contained all 32 attributes identified by Louw et al. (2018). As background to the questionnaire, each respondent was reminded that it was very unlikely that a single individual would have the full spectrum of attributes. The practical number of essential attributes a sponsor could reasonably possess appeared to be seven (APM, 2018; Barshop, 2016; Bourne, 2015; De Klerk, 2014; Englund and Bucero, 2006; Helm and Remington, 2005; Pacelli, 2005; PMI, 2014; Valencia, 2007; West, 2010; Zaccaro et al., 2004). The respondents were also invited to add any other attribute that was not listed in the questionnaire.

3.2.4 Focus group activity

A focus group activity was conducted to determine, firstly, whether the attributes of sponsors differed between industry sectors. Secondly, the focus group was used to determine whether the attributes profile of a sponsor differed between megaprojects and other relatively large projects. The focus group activity was held with eight out of a possible 13 key players, representing three of the case study projects. These three projects were undertaken by one organisation and were in the petrochemical, chemical and mining sectors.

4 Project descriptions

4.1 The six case studies

The projects selected for the study were from both the private and the public sector. The industry sectors that were represented in the selection were mining and minerals (coal), energy (pumped-storage electrical power generation), fuels and chemicals (wax from natural gas) and transport (rail and pipeline).

From information available in the public domain about cost, schedule, and operability, it was found that the failure rate of 65% for these megaprojects was reasonably similar to that reported globally for megaprojects (Merrow, 2011). Four of the six projects selected did not meet the criteria for success as described by Merrow (2011).

The six projects forming the basis for the individual case studies are presented in Table 1.

Table 1 Projects forming basis for individual case studies

<i>Project #</i>	<i>Title of project</i>	<i>Owner of project</i>	<i>Industry sector</i>
1	Pumped storage scheme project	State-owned power utility company	Public/energy power generation
2	Rapid rail transit project	Provincial government represented by management agency	Public/transport/rail
3	New multi-product pipeline project (NMPP)	State-owned port/rail/pipeline company	Public/transport/pipeline
4	Synthetic hard wax expansion project (FTWEP)	Petrochemical company	Private/energy/chemicals
5	Growth program for synthetic fuels facility (SGP 1a)	Petrochemical company	Private/energy fuels
6	Collieries replacement/expansion program	Petrochemical company	Private/mining and minerals/coal

Further details of the projects are provided via a description of the name of the project, purpose, specifics of the sponsor, and the measures used for the determination of the success/failure of the project in the Appendix.

An elaboration of the qualifications of the individuals that fulfilled the roles of the sponsor, executive management, and project manager on the projects, is provided below.

5 Findings

5.1 Qualifications and experience of survey respondents

The data on the qualifications of the 26 individuals that responded to the survey questionnaire (executive managers, sponsors and projects managers), reflected the following:

- Mainly because of retirements, resignations or organisational changes, certain projects had more than one sponsor, and all nine the sponsors were engineering graduates.
- Six of the sponsors had a further qualification in business studies (MBA or similar) or in commerce.
- All the sponsors had significant experience of their businesses and held executive positions. Seniority and positional power were, accordingly, considered attributes possessed by the sponsor.

- Of the 11 individuals completing the survey questionnaire on the executive management level, only three were not engineering graduates. Seven executive managers had a further business (MBA) or commerce qualification.
- The six project managers were all technically qualified, but not all of them were engineering graduates. Three of the project managers held engineering degrees and three had a further business (MBA), commerce or project management degree.
- The senior managers responsible for psychometrics and skills assessment and the project management office (PMO) within the national electricity utility, held a master's degree in industrial psychology and a national diploma in electrical engineering, respectively. The senior manager responsible for the PMO also had an MBA degree.
- Of the 26 respondents, 21 were engineering graduates and 15 held a further degree in business administration, business leadership, or commerce.
- The 26 respondents had circa 250 years of combined megaproject experience. All of them were from the senior or executive management levels in their organisations and played key roles in the six South African megaprojects completed since 2006/2007.

5.2 Pilot case study

It was recognised that the responses during the interviews with the five individuals involved in the pilot case study [two group executive members, two sponsors (change in this role was necessitated by organisational changes) and the project director], would not allow exhaustive deductions to be made. An analysis of the responses obtained during the pilot case study interviews, however, indicated that the following attributes were not only considered important, but also essential for megaproject success:

- Appropriate seniority, credibility, and power (both positional and personal) in the organisation.
- Ability and willingness to bring objectivity to the project team and to challenge project assumptions.
- Good negotiation skills, particularly in the context of securing resources for the project manager, as well as conflict resolution and achieving compromises.

The above-identified essential attributes are part of the list of top essential attributes that is explained later in this section.

5.3 Survey questionnaire

The data obtained from the questionnaire was used to rank the 32 attributes that were identified by Louw et al. (2018) and to graphically portray

1. the cumulative voting for 'essential' votes per attribute as seen in Figure 3
2. the combined results of 'essential plus important' votes per attribute as seen in Figure 4.

The essential votes per attribute for the total number of survey participants (N = 26) in a stacked numbers format and sorted from left to right/large to small, are reflected in Figure 3.

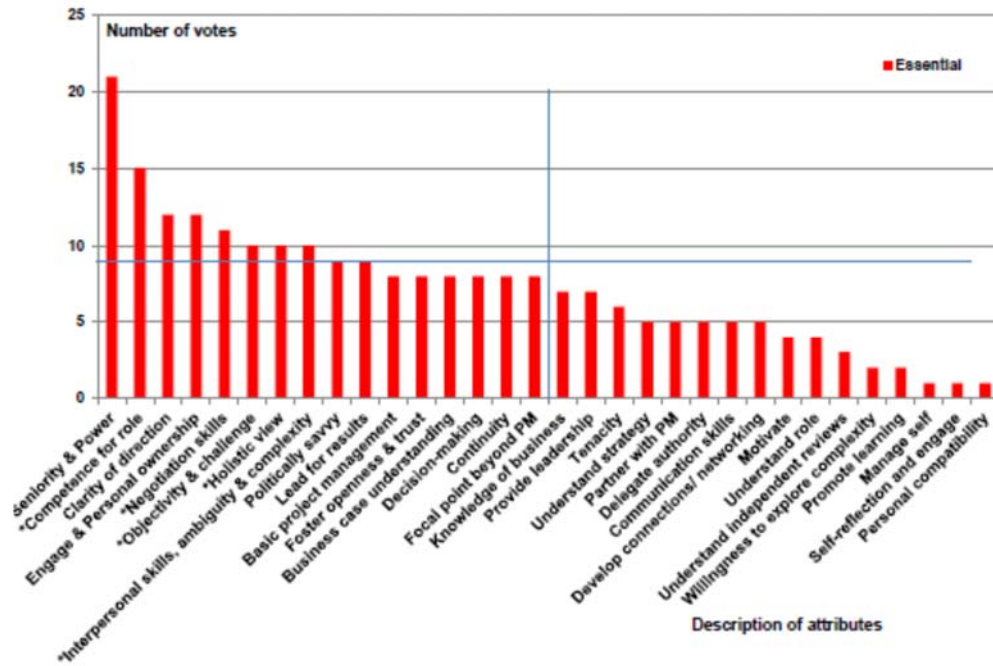


Figure 3 Essential votes per attribute for total survey participants (N = 26)
 Note: *Attributes also found in the ‘top eight’ for Figure 4.

The votes (essential plus important) per attribute for N = 26, are diagrammatically presented in stacked numbers format and sorted from left to right/large to small in Figure 4. The reason for portraying both figures was to bring an element of triangulation to the study. It was also to ensure that sufficient consideration was given to the differences between the two data sets.

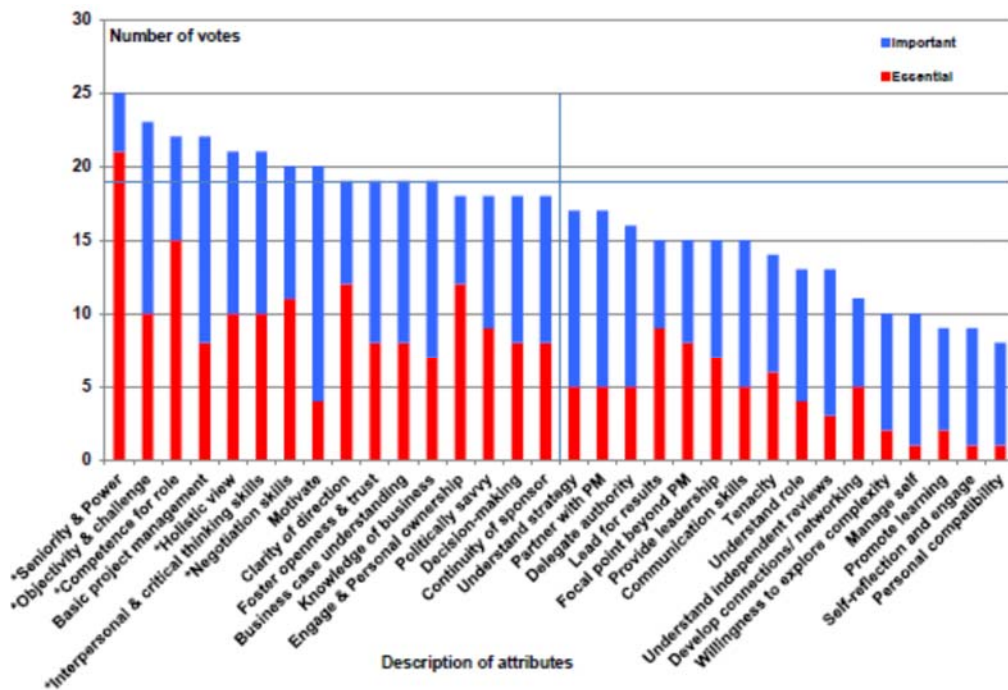


Figure 4 Essential + important votes/attribute for total survey participants (N = 26)
 Note: *Attributes also found in the ‘top eight’ for Figure 3.

As contextualised earlier in the paper, the practical number of essential attributes of a sponsor appeared to be seven (within a range of five to ten). With this guideline, and by evaluating Figures 3 and 4, it appeared that eight was a realistic number of essential attributes to select. Both datasets indicated that the first eight attributes (reading the attribute votes from left to right on the horizontal axis) provided a practical cut-off point. For the purpose of this study, the attributes encapsulated are referred to as the ‘top eight’ essential attributes that a sponsor should possess.

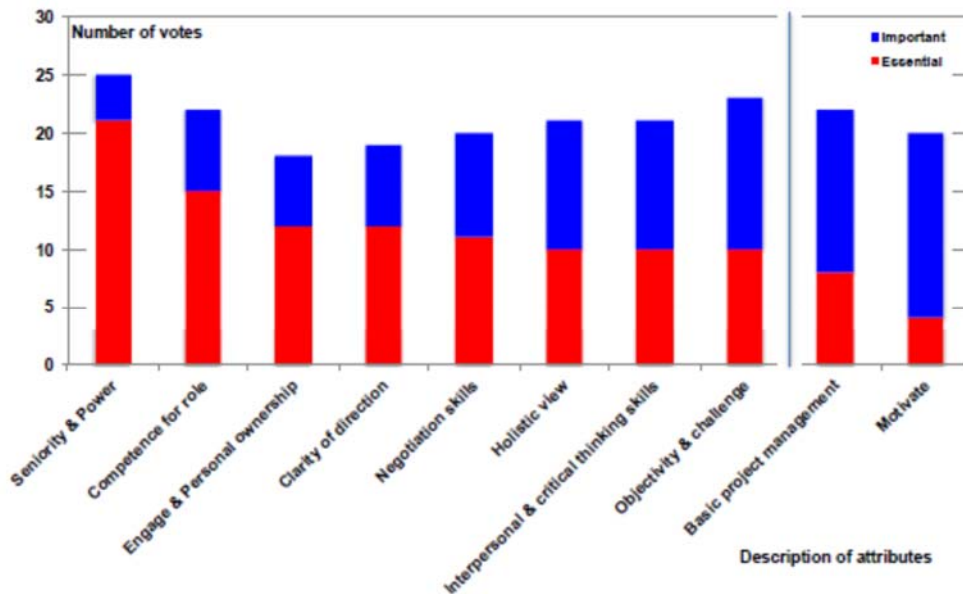


Figure 5 ‘Top eight’ attributes identified after analysing the different attributes between ‘essential’ and ‘essential + important’ votes (N = 26)

Similarly, a point on the horizontal axis of both Figures 3 and 4 (reading from left to right) was identified, where an increased rate of reduction for the number of votes per attribute, became clearly visible. For both figures, this point was reached after 16 attributes, as indicated by the vertical line in the figures. Beyond this point, the remaining attributes were considered neither essential nor important. In the Discussion section, further clarification is provided on why the ‘top eight’ (both essential and important) attributes were identified.

The attributes found in the ‘top eight’ list of both Figures 3 and 4, are indicated by an asterisk (*) in the figures. The ‘top eight’ combined scenario is reflected in Figure 5. The votes per attribute for N = 26 are diagrammatically presented in stacked numbers format, and sorted for essential votes from left to right/large to small in Figure 5.

Both the ‘clarity of direction’ and ‘engagement and personal ownership’ attributes had garnered more ‘essential’ votes than the ‘knowledge of basic project management’ and ‘ability to motivate’ attributes. The cumulative total votes (essential plus important) for the latter two attributes, were more than for the initial two attributes mentioned. By arguing that essential votes carried more weight than important votes when the total votes per attribute were relatively close, it was concluded that the ‘clarity of direction’ and ‘engagement and personal ownership’ attributes, were to be included in the essential ‘top eight’ attributes. The ‘knowledge of basic project management’ and ‘ability to motivate’ attributes then become part of the ‘important but not essential’ attributes spectrum.

From a survey questionnaire perspective, the final ‘top eight’ essential attributes required for success by an executive sponsor on a megaproject, are listed, accordingly, as follows:
a Appropriate seniority, credibility and (personal and positional) power within the organisation. Credibility is understood in terms of being accepted by the organisation and stakeholders as suitable for the role¹:

“You cannot have all the responsibilities in the world with no authority. And if you don’t get those two things right then I say, especially in the public sector, what authority do I have?” – [executive sponsor]

b Possesses the competence (namely the combination of knowledge, personal attitude and skills) to fulfil the role:

“In reflecting on his own sponsor in the case study, a respondent stated that he understood the broad aspects of the project, technically, financially, legally and also the socio-economic development aspects, including things like local content.” – [project manager]

c Ability to engage by being willing to take personal ownership and acting in the long-term interest of the organisation (demonstrating loyalty, motivation and commitment):

“Leadership capability, and then also very important I think is ‘commitment’ to the project. The sponsor actually needs to ‘believe’ that the project should be done.” – [executive manager]

d Ability to provide clarity of direction (including the development of a compelling vision), within the context of the strategy and governance arrangements of the organisation:

“In my mind he should be able to drive strategy. For that matter he must, being a strategist, also understand the business that he is in and what are the real critical success factors.” – [project manager]

e Possesses good negotiation skills, particularly in the context of securing the availability of resources (financial, people or otherwise) for the project manager.

f Ability to take a holistic view and engage peers in the organisation for advice and support for key decisions

“I think the big one for me is you (the sponsor) need a ‘big picture attitude’.” – [executive sponsor]

g Possesses interpersonal and critical thinking skills, including the ability to work with and handle ambiguity¹.

h Ability and willingness to provide objectivity to the project team and challenge the project assumptions¹:

“I’ve always been challenging the guys and ask them - are there better ways of doing things? Have we really thought of everything?” – [executive sponsor]

The resultant ‘top 8’ essential attributes based on the analysis of the survey questionnaire data and depicted in Figure 5, were tested for both saturation and generalisability through the addition of a 27th survey questionnaire.

The respondent was a member of the executive management of a paper and pulp manufacturer in South Africa, with a completed project closely in the league of the defined megaprojects. The result was that no new insight was generated and that there was a distinct overlap (six out of eight attributes) between the individual’s view on essential attributes, and the ‘top eight’ attributes in Figure 5. The authors are confident that the findings from the research can be generalised largely to other research settings.

5.4 Focus group activity

As mentioned earlier in the paper, the focus group activity aimed to determine whether the attributes of sponsors differed among industry sectors and whether the attributes profile of a sponsor differed between megaprojects and other relatively large projects.

The outcome of the activity was as follows:

- The group agreed that the attributes of the sponsor did not differ significantly between industry sectors, except that specific knowledge of an industry sector was an essential attribute of an effective sponsor. Even within a specific sector, for example mining, an individual with knowledge of gold mining would not necessarily be an effective sponsor of a coal mining project. The ability to provide guidance during the concept phase, and the development of alternatives to arrive at the optimum business case, was specifically emphasised in this regard.
- The group also agreed that the sponsor attributes profile required for megaprojects versus that of other relatively large projects, did not differ significantly, except for the specific knowledge of an industry sector as raised above. It was also agreed that, whilst an individual may be able to fulfil the role of sponsor on more than one large project, the complicated nature of a megaproject required a dedicated, single individual for each megaproject.

6 Analysis of results

From the data provided, it was evident that the group of respondents was technically well-schooled (engineering degrees) and well-schooled in business management. The nature of the essential attributes identified by the group, reflected a balance between the ‘harder’ (often more intrapersonal) components of the management sciences [attributes (a), (b), (d) and (g)], and the ‘softer’ (often more interpersonal) components of the humanities [attributes (c), (e), (f) and (h)]. It was very likely that the business management qualifications, with the appropriate focus on the humanities, played a role in this regard. The large number of engineering degrees among the respondents seemed to indicate that an engineering sciences background was an important attribute for sponsors in the megaprojects category that was investigated.

If the balance between the management sciences and the humanities for the essential attributes was accepted, it raised the question to what extent the sponsors of the case study projects already possessed this balance in attributes. The megaprojects that were studied did not perform better than the global success rate of 35%. The evaluation of the case study projects indicates that only two projects (the rapid-rail link project and the collieries replacement/expansion program) can be regarded as a success, implying a success rate of 33%. It was, however, not possible at this juncture to suggest that the sponsors for the two successful projects possessed the required essential attributes, and that sponsors for the other four projects studied, were lacking the required essential attributes. Failure of a megaproject does not necessarily imply that the sponsor did not have the required essential attributes.

6.1 Public versus private sector projects

The distribution of the ‘top eight’ votes from the respondents in the private sector (N = 15) and public sector (N = 11) projects, is indicated in Figure 6. The private sector ‘top eight’ sponsor attributes are indicated with (a) and the public sector attributes with (b), along the horizontal axis in Figure 6. The black lines in Figure 6 connect the essential votes (as a percentage of the total votes) per attribute in the private sector (a’s) and in the public sector (b’s) respectively.

It is clear from Figure 6 that for the public sector the ability of the sponsor ‘to be objective and to challenge the project team’ is perceived as ‘essential’, by markedly fewer respondents than for the private sector. A possible explanation for this could be that in the public sector

the sponsorship role could be a relatively weak construct in creating the project team (Remington, 2011). Remington further argued that leadership roles in the public sector were, to some extent, considered as a collective whole across organisational levels, for example, executive, senior, and middle management. How sponsorship manifested itself on these levels depended very much on the context of the project.

In turn, the ability to provide clarity of direction, takes a holistic view. To negotiate and be in possession of interpersonal skills were considered to weigh much more for a sponsor in the public than in the private sector. These four attributes plus the attribute ‘competence for the role’ formed a nucleus of attributes required for a public sector sponsor. This nucleus was considered essential by 50% to 60% of the public sector respondents, and was very similar in ranking.

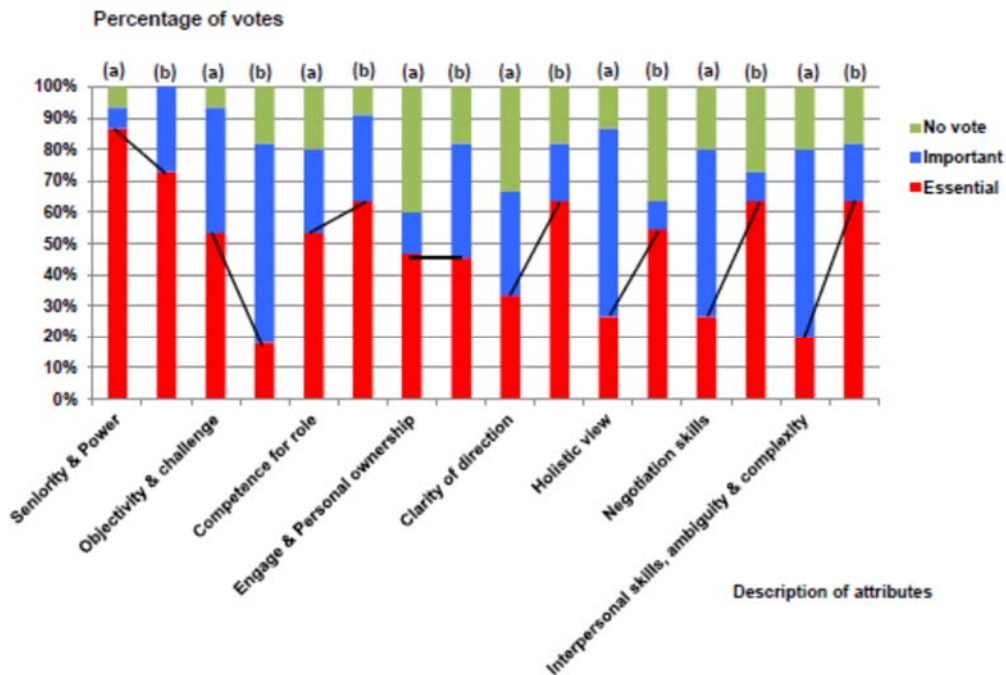


Figure 6 ‘Top eight’ attributes as voted for private (N = 15) and public (N = 11) sector projects
 Note: Format: stacked 100%; (a) = private sector (b) = public sector sorted of essential attributes/left to right/large to small.

6.2 Executive management vs. sponsors vs. project management

The voting for the ‘top 8’ attributes by executive management, sponsors and project management, is represented in Figure 7. For the purpose of this analysis the input by the two supporting services individuals (senior managers responsible for psychometrics and skills assessment and the project management office, respectively, within the national electricity utility) were considered part of executive management.

Studying Figure 7, the following can be deduced (accompanied in certain aspects by possible reasons for the deductions without being too speculative):

- All three organisational levels rated ‘seniority and power’ as either the first or second essential attribute of the sponsor.
- Whereas project management regarded the ‘ability to negotiate’ attribute as the first essential attribute, fewer executive management and sponsors considered this attribute as essential. This attribute was particularly valuable to project management in

situations where stalemates had been arrived at in contractual discussions, and next level input was required.

- Executive managers, project managers and sponsors viewed ‘competence for the role’ very differently. Both executive management and project management regarded this attribute to be much more needed than the sponsors did. A possible reason for this is that the sponsors felt that they were competent hence competency was taken as a given and rated lower.
- The sponsors considered the ‘ability to be objective and 'to challenge the project team’, much more important than either executive managers or project managers did. It is possible that one of the specific accountabilities of the sponsor, to provide direction by ensuring alignment of the project with company strategy, played a distinct role in this assessment from a continuous validation perspective.
- Project managers considered the sponsor ‘being engaged and taking ownership’ as the least significant of the essential attributes. This clearly differed from the perspectives of executive managers and that of the sponsors. Project managers were often wary of others interfering in their projects, and this might be an explanation for this assessment.
- Executives, project managers and sponsors all considered the ‘ability to take a holistic view’ as of a lesser ‘essentiality’ ranking. However, for the sponsors and executive management in particular, this is misleading. When total votes (including ‘important’) are considered, then the ‘ability to take a holistic view’ features significantly stronger.

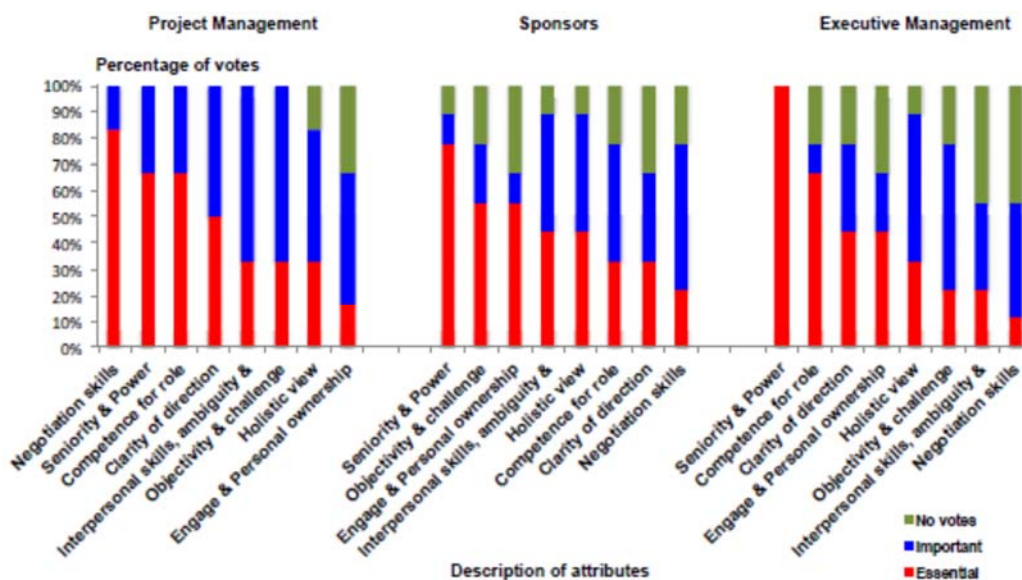


Figure 7 ‘Top eight’ attributes voted by project management (N = 6), sponsors (N = 9) and executive management (N = 11)
 Note: Format: stacked 100%, sorted by essential attributes/left to right/large to small.

6.3 Successful vs. failed projects

The difference in voting for the ‘top 8’ attributes by executive management, sponsors and project managers, as per the combined results of the successful projects compared to the combined results of the failed projects, is represented in Figure 8. In the Analysis of results section, the successful projects (when measured with the criteria as per Merrow, 2011) were indicated as the Rapid-Rail Link Project and the Collieries Replacement/Expansion Program. The other four projects were considered as failed projects (see Table 1). The information in Figure 8 was obtained from nine respondents from the successful projects and 17 from the failed projects.

For this analysis, the input of the national electricity utility by the two senior managers from supporting services responsible for psychometrics and skills assessment and the project management office respectively, was included. From Figure 8 it could be deduced that:

- Respondents from both the successful and the failed projects rated ‘seniority and power’ as the most essential attribute.
- The respondents on successful projects considered ‘clarity of direction’ and ‘interpersonal skills, including the ability to deal with ambiguity and complexity’, significantly more important than the respondents from the failed projects.
- The ‘competence for the role’ was considered considerably less important for respondents from successful projects than for the respondents from failed projects.
- In the Introduction of this paper, the sponsor’s ownership of the business case is emphasised. The expectation thus was that the ‘ability to engage by being willing to take personal ownership and acting in the long-term interest of the organisation’, would be considered more important for respondents from successful projects. That was, however, not the case. Respondents from the successful and from the failed projects, respectively, indicated no meaningful difference for the importance of this attribute.

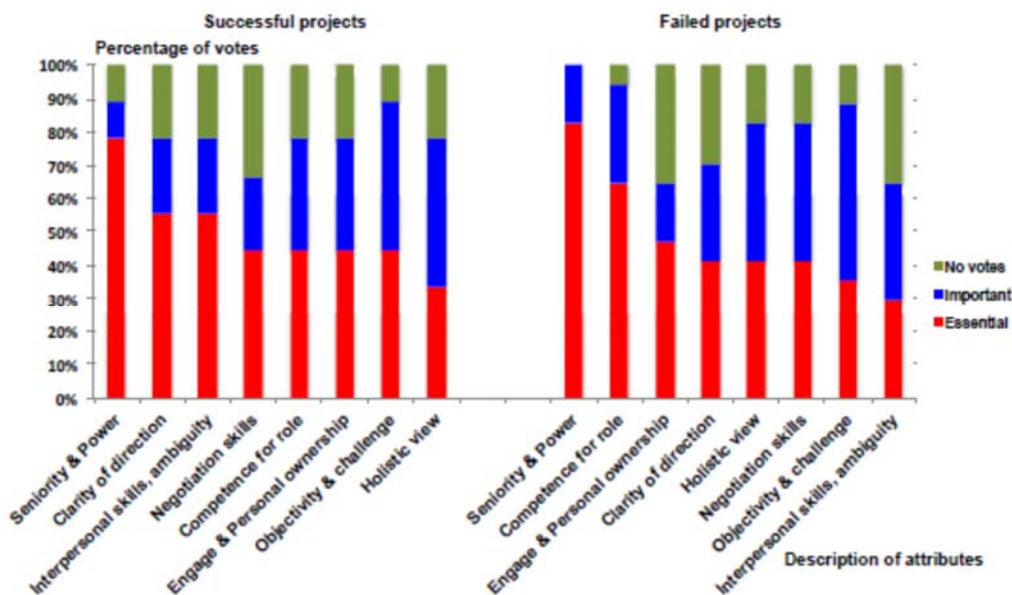


Figure 8 ‘Top eight’ attributes voted by project management, sponsors and executive management for the collectives of successful and failed (unsuccessful) projects

Note: Format: stacked 100%, sorted by essential attributes/left to right/large to small.

7 Discussion

7.1 Research questions and aim

The responses to the research questions are reflected on as follows:

Research question 1 How is the potential megaproject sponsor identified and appointed, and what are the attributes that they should possess?

No formal assessment process was used to identify or select any of the sponsors. The sponsors of all six projects were from the executive management ranks of their organisations. In all six cases, the sponsor was either the originator or the developer or the owner of the

business case. In none of the six cases the required attributes to perform the role effectively, were formally considered for the appointment. Thus, it was not possible to determine the ‘how’ part of the research question successfully. The attributes a sponsor should possess became clearer as the results of the survey were analysed. These results provided insight into the required sponsor attributes.

Research question 2 How do professionals in the field rank the relative importance of the attributes of megaproject sponsors (assuming not all the attributes are equally important)?

The extensive managerial experience of the respondents participating in the survey enabled them to rank the relative importance of the attributes with relative ease. They primarily made use of their prior experience to differentiate between essential and important attributes of a sponsor. By plotting the individual responses received from the survey, relative ranking of the attributes was determined for both essential and important attributes.

Research question 3 Why are certain attributes of the sponsor on a megaproject defined as important?

Prior to the survey, specific effort was made to explain the difference between important and essential attributes to the respondents. The challenge was to create an understanding that in the ‘important’ category, some important attributes were more important than the rest. These attributes were considered as ‘essential’. The understanding was assisted by further clarification provided, that not all attributes of a significant number identified in literature, could normally be accommodated in the persona of one individual.

Research question 4 Which important attributes of a sponsor on a megaproject are considered as essential for the project to be a success?

Both Figure 3 and Figure 4 assisted in answering the research question why certain attributes were defined as important, and which important attributes were considered essential. Earlier clarification on the interpretation of Figures 3 and 4 assisted in identifying those attributes that were considered more important than the rest. Additionally, both figures then assisted in clarifying the even more important essential attributes.

Attempting to identify a large number of essential sponsor attributes was not practical. Only a limited number of attributes were required to be effective in the role (APM, 2018). As mentioned in the Survey questionnaire section, literature recommended a range of five to ten attributes, of which seven appeared to be a practical number. For the purpose of the paper, the ‘top eight’ attributes as depicted in Figure 5, were considered as essential.

Research question 5 Which psychometric and other tests can reliably assess important attributes of a potential megaproject sponsor?

None of the survey respondents indicated when asked that psychometric or other tests were used, to assess the attributes of a potential sponsor. Louw et al. (2018) suggested a framework for the application of certain psychometric and other tests to determine

1. the leadership style of the potential sponsor
2. the important attributes of a candidate.

Research question 6 What should the level of active participation of a megaproject sponsor ideally be, in order to make a decisive impact on the success of the project?

None of the cases in the survey revealed that the sponsor encroached on the role and responsibilities of the project manager. According to the project managers, active and positive participation of sponsors should include

1. focus on governance
2. consistently ensuring that the project supported the business case
3. stakeholder management.

Active participation in stakeholder management was emphasised by project managers, especially the ‘ability to negotiate’ attribute. The project managers found that for matters outside their control that required negotiation, a sponsor with this attribute was particularly valuable. Executive management considered ‘active participation’ as knowing what was happening on the project through frequent contact with the project team, often shortly before reporting to a steering committee or board.

‘Continuity’ was important but it was not considered essential. It should be kept in mind that a megaproject typically has a total lifecycle in excess of 10 years. For an individual with high potential, in the early stages of their executive management career, such a period was inordinately long to spend in one position. An older executive, heading towards retirement, might also not be a sustainable incumbent for the full project lifecycle. It might be wise for one individual to act as sponsor for the conceptual phase and another one for the execution phase of the project.

8 Conclusions and recommendations

The relationships between the attributes of megaproject sponsors, their effectiveness and project success (Figure 1) has not been investigated before. This implied a shortcoming in guidance for executives responsible for the identification and appointment of sponsors.

By identifying and ranking attributes required by executive sponsors of megaprojects, this paper contributes to the sparse literature on this topic and, furthermore, it provides guidelines for executives and company boards who have to appoint sponsors on megaprojects. The use of the guidelines provided could increase the likelihood of megaproject success.

In all six cases studied, executive management did not formally take attributes into consideration when identifying potential sponsors or when selecting and appointing a sponsor.

Appointing an individual that possessed most of the essential attributes and ensuring that these attributes were effectively applied, should positively influence the desired successful outcome of a project.

Bourne (2015, p.125) made a very relevant comment on the governance process of sponsor identification and appointment by stating: “the era of the ‘accidental project manager’ has largely passed, but we are still in the age of the ‘accidental sponsor’.” For all the cases studied, the sponsor’s identification and appointment was not ‘accidental’, however, the formalisation thereof in terms of attribute assessment, should be improved significantly.

From the analysis of the survey questionnaire data, the following three attributes were identified as the top essential attributes a sponsor should possess:

- Appropriate seniority, credibility and (personal and positional) power within the organisation. Credibility is understood in terms of being accepted by the organisation and stakeholders as suitable for the role.
- Ability and willingness to provide objectivity to the project team and to challenge the project assumptions.
- Ability to provide clarity of direction (including the development of a compelling vision) within the context of the strategy and governance arrangements of the organisation.

The focus of the paper has primarily been on the identification of the top essential attributes an executive sponsor should possess from a survey questionnaire perspective. It is, however, required to also reflect (albeit briefly) on those attributes that are considered important, but not essential for the sponsor to possess. These attributes would play a very important role in distinguishing between potential sponsors, when their essential attributes profiles appear to be very similar.

From the analysis of the survey questionnaire data, the following three attributes were identified as the most important, but not essential attributes a sponsor should possess:

- In the public sector the sponsor needed to be politically ‘savvy’, meaning very astute and connected. For sponsors in the private sector, the need to be connected in an organisational context, was considered vital for the ‘seniority and power’ attribute;
- An understanding of business case development and by implication the business, the customer (market) and/or operations to enable informed decision-making; and
- An understanding of basic project management (meaning they can comment constructively at a high level on scope, risk, schedule, and cost management).

Recommendations for future studies include the following:

- The impact of behaviours such as corruption, nepotism, fraud, and bribery on the outcomes of projects, and how the sponsor should utilise their attributes in dealing with such behaviours. These behaviours were difficult but not impossible to control.
- An in-depth investigation into the use of psychometric or other tests to determine which of the essential attributes a candidate sponsor possesses.
- An in-depth investigation into failed megaprojects with specific reference to the contribution of the sponsor to project failure. It should, however, be kept in mind that individuals may be hesitant to provide information on failed projects, and specifically the contribution of the sponsor to that.
- Formal consideration and evaluation by executive management of the attributes profile of the sponsor in the selection/appointment process.
- A potentially onerous, yet value-adding task to correlate project success with sponsor attributes.

Implementing an approach where the attributes of a potential megaproject sponsor are assessed, is neither revolutionary, nor is it a very difficult or costly process. It is also no ‘silver bullet’ solution to a very complicated problem – the failure of megaprojects. It does, however, have the potential to result in a very significant return on investment.

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Notes

¹ Sponsor attributes identified by Remington (2011) specifically referring to complex projects.

Appendix

Project details: name, purpose, sponsor specifics and measures for success/failure Case studies (projects)

1 Ingula pumped-storage scheme project

Project purpose

The scheme functions as peaking plant, providing 1,332 MW of electricity during periods of peak demand on the national network. The project is also intended to reduce the dependence of the national electricity utility by using very costly diesel-powered open-cycle gas turbines.

Specifics of sponsor

The sponsor role was not a full-time role and no formal appointment of the individual in the role took place. Appointment in the role (2007) occurred a number of months prior to commencement of the construction phase. The sponsor did, however, prior to being given the responsibility for the clean technology project portfolio; spend about six months on the project during the pre-feasibility study, in order to get it going. No psychometric or other assessments were performed to determine the suitability of the individual for the commissioning and handover.

Key measures used for determination of success or failure of project (Merrow, 2011)

- Budget capital cost: US\$0.89 billion. Actual capital cost: US\$3.6 billion
- Planned completion (testing, commissioning and fully operational): End 2013. Actual completion: Beginning 2017.
- Both budget and planned duration were exceeded by more than 25%.
- Operability: Significant deviations occurred within the first two years of commercial operations.

2 Gautrain rapid-rail link project

Project purpose

The purpose of the project was to establish a rapid-rail transit system, linking the cities of Johannesburg and Pretoria and OR Tambo International Airport.

Specifics of sponsor

The project leader (the de facto sponsor), as the director-general of the Gauteng Department of Public Transport, Roads and Public Works, was appointed as project leader on the project in 2004. In 2006 he was also appointed CEO of the management agency established for the project. It was clear that the sponsor was responsible for all aspects of the business case.

The sponsor role was not full-time, and no formal (documented) appointment of the sponsor in this role took place. No psychometric or other assessments were performed to determine the suitability of the individual for the role.

Key measures used for determination of success or failure of project (Merrow, 2011)

- Budget capital cost: The contract price agreed in September 2006 (US\$2.51 billion) was considered as the budget. Actual capital cost: US\$2.81 billion with US\$0.24 billion for operational and support costs. US\$3.0 billion was the final cost foreseen (Thomas, 2013).
- Planned completion: Contractual completion date was June 2011 (57 months after contract signature). Actual completion: Operational readiness achieved mid-2012.

- Operability: No significant deviations within the first two years of commercial operations.

3 New multi-product pipeline project

Project purpose

During 2005 the national government commissioned a report on fuel shortages in the country. The report indicated that additional pipeline capacity was ‘urgently required to supply inland markets’. It also indicated that the development of a new pipeline was to be jet fuel.

Specifics of sponsor

The sponsor initiated the project in early 2000. He demonstrated and claimed very strong ownership of the business case. As managing director of the pipelines division within the national rail, port and pipeline utility, he was a sponsor ‘with absolute authority and responsibility’, but did not ‘own’ or have overall accountability for the business case in his later role as group executive. As group executive, he stated that ‘the sponsor had no teeth but was still kept accountable’. The sponsor role was not full-time and no formal (documented) appointment of the individual in the sponsor role took place. No psychometric or other assessments were performed to determine the suitability of the individual for the role.

Key measures used for determination of success or failure of project (Merrow, 2011)

- Budget capital cost: Initial estimated cost US\$0.95 billion. Actual capital cost: US\$3.04 billion in 2017.
- Planned completion: 2010. Construction of the pipeline commenced early 2008. Actual completion was 2017.
- Both budget and planned duration were exceeded by more than 25%.
- Operability: deviations within first two years of commercial operations are yet to be determined and confirmed.

Comment from owner

The owner does not agree with the researcher regarding the outcome of the project and the criteria used to determine the outcome. According to the owner’s perspective, the overall objective of the project was to ensure security of supply for the inland markets, which it did. The owner further argues that all necessary approvals were obtained for the various increases in cost and schedule. According to the owner’s view the project was a success.

4 Fischer-Tropsch wax expansion project

Project purpose

The purpose of the project was to double the production of hard wax in the integrated energy and chemicals company in its South African operations. The wax business unit of the company, accordingly, undertook a synthetic (Fischer-Tropsch-technology-based) hard-wax expansion project. The investment for the project was approved in December 2009.

Specifics of sponsor

There were two sponsors on the project. The initial sponsor was the originator of the concept to double the production of hard wax. He was appointed managing director of the wax business unit and sponsor on the project in 2006, but he relocated to the USA in 2012, creating an uneasy situation for the project manager regarding the lack of continuity of the sponsor on this complicated project. The senior vice president responsible for operations of the company in the Free State Province, was appointed as the second sponsor in 2013.

No psychometric or other assessments were performed to determine the suitability of either individual for the role.

Key measures used for determination of success or failure of project (Merrow, 2011)

- Budget capital cost: US\$0.84 billion. Actual capital cost: US\$1.36 billion.
- Planned completion: Phase 1 was expected to come into operation in 2012. Construction of Phase 1 began March 2010. Phase 2 was expected to come into operation by 2014. Construction of Phase 2 began 2014. Actual completion was 2017.
- Both budget and planned duration were exceeded by more than 25%.
- Operability: No significant issues that negatively impacted operability of plant were encountered.

5 Growth programme for Synfuels Secunda facility

Project purpose

The purpose of the project was to use the full capacity of natural gas, delivered after completion of a natural gas pipeline project from Mozambique to South Africa. For this purpose the integrated fuels and chemicals company launched the Natural Gas and Secunda Growth Programme (NG&SGP).

Specifics of sponsor

There were two sponsors on the programme. The initial sponsor commenced with the role in 2004 while he was managing director of the gas business unit of the company. In the beginning it was not a full-time role, but he was allocated to the NG&SGP on a dedicated basis in 2006, after which he was accountable for the success of the programme that spanned across three business units. This necessitated a strong focus on the overall group objectives of the company.

As sponsor he reported directly to the group executive responsible for the South African energy businesses, where he played the sponsor role until his retirement at the end of 2009.

The second sponsor took over the role at the beginning of 2010. As sponsor and senior vice president responsible for the synthetic fuels operations of the company in the Mpumalanga Province, he reported to the group executive responsible for South African operations.

For both sponsors no formal (documented) appointment process as sponsor was followed. No psychometric or other assessments were performed to determine the suitability of either individuals for the role.

Key measures used for determination of success or failure of project (Merrow, 2011)

- Budget capital cost: US\$1.415 billion. Actual capital cost: US\$1.415 billion.
- Planned completion: September 2013. Actual completion: September 2014.
- Only the planned duration was exceeded by more than 25%.
- Operability: No significant operational deviations were encountered within the first two years after start-up.

6 Collieries replacement/expansion programme

Project purpose

Four ageing coalmines had to be replaced as their reserves were approaching the end of their economically mineable life. The mining division of the integrated energy and chemical

company undertook the programme. The coalmines are located in the coalfields of the Mpumalanga Province in the proximity of the synthetic fuels facility of the company.

Specifics of sponsor

There were two sponsors on the programme (from early 2007 to end 2018). The role was not a full-time one, but merely part of the sponsors' functions as members of the executive team of the mining division.

The initial sponsor assumed the programme sponsor role in early 2009, handed over the role in mid-2014, and because of organisational redesign considerations, assumed it again in mid-2018. The second sponsor took over the role in mid-2014, and handed it back in mid-2018 because of the mentioned company reorganisation.

Neither individual was allocated a full-time sponsor role. No formal (documented) appointment process was followed. No psychometric or other assessments were performed to determine the suitability of either individual for the role.

Key measures used for determination of success or failure of project (Merrow, 2011)

- Budget capital cost: US\$1.58 billion. Forecast capital cost: US\$1.53 billion.
- Planned duration: The schedule for the programme was determined on a staggered basis. As the programme unfolded, more clarity was reached on the completion dates for each of the mines. Actual completion: The programme is progressing as intended, with completion forecast for mid-2019.
- Operability: Thus far, no significant operational deviations were encountered within the first two years after start-up of the mines were completed.