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Consolidating the roles of financial feasibility studies: Property developers vs quantity surveyors

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Abstract: Financial feasibility studies in real estate development are problematic and complex and some of the success thereof relies on the communication and perspectives of at least two key stakeholders. The aim of this research is to determine the roles of financial feasibility studies based on two opposing perspectives – real estate developers and quantity surveyors. Semi-structured in-depth interviews were conducted involving 23 quantity surveyors and 23 developers by means of purposive sampling, thus making this study a qualitative interpretivist approach. A thematic analysis was conducted. The aligned roles that emerged from both perspectives are setting up the budget, practice cost control, value engineering, basis for negotiations with consultants and contractors, tool for investment decisions and tool to acquire financing. The unaligned roles from the developers' perspective include basis for a business plan, acceptable debt determination, negotiations with landowner and tenants, basis for progress measurement, basis for as-built facility and risk on total cost. Additionally, the QS use it to secure income, as a tool to advise and for sensitivity analysis. The study found that there are prominent differences in the perspectives of the key stakeholders regarding the role of feasibility studies, while considering the perspective theory.

Keywords: financial feasibility studies, real estate development, construction cost, quantity surveying, and investing in construction, perspective theory, building cost

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1 Introduction

A financial feasibility study evaluates a proposed project if it adheres to the financial requirements of the developer. It provides clarity on whether the investment will generate enough cash flow to counter the debt service and provide an acceptable return to the investors (Costello & Preller 2010). The financial feasibility (Willemse 2019) is also referred to as the economic feasibility (Mukherjee & Roy 2017). For the purpose of this study, the term 'feasibility(ies)' is used to refer to financial feasibility studies.

Feasibilities are specifically used by the private sector concerned with commercial and economic success, while the public sector is rather motivated by social benefits (Rwelamila & Ogunlana 2015). Hence, this study focuses on the private sector where feasibilities have been identified as a critical success factor (Mudi 2016).

The quality and success of feasibilities are in question. Studies found that feasibilities are inconsistent in contents in China (Shen et al. 2010), inadequate in Nigeria (Oso Sunday 2020) and neglected and problematic in Iraq, leading to the abuse of feasibilities (Mohammed et al. 2019). Furthermore, only 40% of the feasibilities in Iceland adhere to the best practice elements and the rest 60% are incomplete (Stefánsdóttir 2015). In South Africa, the feasibilities are similarly incomplete (Willemse 2019). In a study conducted by Huxham (2010) in South Africa, the rental income was forecasted incorrectly in 58% of the feasibilities and 42% had an incorrect estimation of the profitability. Kgaka (2018) also found that the rental income is often overestimated in South Africa. Furthermore, it is a complex document that involves a substantial amount of factors, including communication, that influence the success of the document, investment decision and construction project (Terblanche et al. 2021). One way to improve feasibility studies is to align the perspectives of the key stakeholders.

The ability to see other people's perspectives is integral to communication and effective interaction with

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other individuals (Clark & Brennan 1991; Samuel et al. 2020). If misalignments in perspectives are not resolved, then feasibilities will remain inadequate, incomplete and misleading to investment decisions. According to the perspective theories, individuals, both children and adults, generally have trouble appreciating that other individuals perceive the world in a different manner (Epley et al. 2004). These difficulties are often attributed to the tendency to be biased by one's own perspective, due to an effect known as the 'curse of expertise' (Hinds 1999), the 'curse of knowledge' (Birch & Bloom 2007), egocentrism/egocentric bias (Apperly et al. 2010) or the 'false consensus effect' (Ross et al. 1977), among other terms.

Quantity surveyors prepare and communicate financial communication via cost estimates, budgets, financial feasibility studies, cash flows, etc. (Maritz & Siglé 2016). They have been recognised as the professionals who primarily manage construction costs as well as the financial consultants in the property development industry who advise clients on the optimal expenditure of capital (Cruywagen & Llale 2017). The architects and engineers are part of the design team (Van Eck & Burger 2016), while the project managers manage the team. Often, the engineers (e.g. electrical engineers) will prepare and manage the budget of their specific discipline. However, all the separate disciplines (including real estate agents and market analysts) will feed the information to the quantity surveyor who will consolidate it into the feasibility and communicate it to the developer (Terblanche et al. 2021). It is also important to note that the composition of the team may vary depending on the scale and complexity of the project. Some projects may involve additional specialists such as environmental consultants, urban planners or sustainability experts to contribute to specific aspects of the development's feasibility.

While the quantity surveyor prepares and communicates feasibilities to the developer as part of their professional services (Maritz & Siglé 2016), the property developer must make an investment decision based on this communication (Sudhana 2016). This means that the Quantity Surveyor (QS) and the property developer (private sector) are the two key stakeholders. Understanding the comprehensive roles of these feasibilities will thus benefit the QS's professionals as well as their clients (real estate developers). Without a clear understanding of the roles of these feasibilities, the correct end goal cannot be prepared, leaving it incomplete and of poor quality. For the QS to prepare the feasibilities in order to fulfil the desired roles required by the real estate developers, they should be aware of the other perspectives in addition to the roles they perceive themselves.

Feasibility problems have been investigated. For instance, Willemse (2019) investigated the occurrence of best practice elements of feasibilities in South Africa and found that most feasibilities do not fulfil their roles according to these practices; however, only one stakeholder's (QS) view was represented. In addition, Perera et al. (2016) adopted a questionnaire survey and business case analysis to evaluate three cost and commercial management practices from China and the UK. Another study did a questionnaire survey in Pakistan and listed some roles of feasibilities (Anees et al. 2018); however, there was no theory building approach. Nonetheless, these studies did not take multiple key stakeholders' perspectives into account. The gaps highlighted in the literature above underpin this study.

The above two perspectives must be investigated to gain an understanding of the differences in the perceived roles of the feasibilities. The current study therefore identified the roles of the feasibilities as perceived by two key stakeholders – the real estate developer and the quantity surveyor in the private sector. A comprehensive view on the roles of these feasibilities from more than one perspective could contribute to improved feasibilities by creating clear end goals by means of consolidating the differing perspectives. This knowledge can be used to bridge gaps in communication and misunderstanding by aligning the roles of feasibilities. The rest of the paper presents an overview of literature on the feasibility studies and its applicable areas.

2 Literature review

An overall feasibility study encompasses various aspects, including technical feasibility, legal feasibility, operational feasibility, scheduling feasibility and the financial feasibility (Costello & Preller 2010; Mukherjee & Roy 2017). A financial feasibility study specifically produces the overall project cost and projected income that indicates the profitability (Anees et al. 2018). A poor quality feasibility study will therefore compromise the profitability by turning the project into an undesirable investment (Huxham 2010).

A financial feasibility study has been identified as a 'critical success factor' of construction projects that cause failure of projects if not executed or communicated correctly (Mudi 2016; Mukherjee & Roy 2017). The failure of a feasibility study will reflect poorly on the QS's reputation and, more importantly, the investment will have been a waste of time and money. While the obvious role of a feasibility study has been presented, feasibilities have many roles. The aim of the literature review is to present the known roles of feasibility studies as comprehensive as possible.

The following roles emerged from the above-mentioned studies indicated in Table 1. First, it informs key project dates (Anees et al. 2018). A feasibility study also forms the basis for the project budget (Anees et al. 2018; Kimaru 2018; Willemse 2019), cash flow (Anees et al. 2018; Syed Alwee et al. 2019), value engineering (Kwaku Osei 2016; Anees et al. 2018; Syed Alwee et al. 2019), life cycle costing (Syed Alwee et al. 2019) and negotiations

Tab. 1: Review of the studies

Study	Reference	Location	Methods	Population & sampling	Findings
1	Mackenzie and Cusworth (2007)	Australia	Literature review	N/A	Methods to improve feasibilities and roles of feasibilities
2	Kwaku Osei (2016)	Ghana	Literature review and case study	One mine	Found an average cost overrun of 25% and methods to improve feasibilities to fit some roles
3	Sudhana (2016)	Indonesia	Semi-systematic literature review and case study	One hotel	Factors that influence the quality of feasibilities as well as the role of a feasibility from the developer's perspective
4	Perera et al. (2016)	China and the UK	Questionnaire survey and business case analysis	Three cost and commercial management practices, each from the two countries	Comparing the UK and China's cost management systems (including feasibilities), and proposing a neutral framework for both to use
5	Mukherjee and Roy (2017)	India/worldwide	Literature review	N/A	Factors that influence the success of feasibilities and methods to improve feasibilities to fit some roles
6	Heralova (2017)	Czech Republic	Case study	One office building	Life cycle costing is seen as part of the role of a feasibility
7	Anees et al. (2018)	Pakistan	Questionnaire	Client, consultants and contractor: 56 responses	Roles of feasibilities
8	Syed Alwee et al. (2019)	Malaysia	Questionnaire	QSs, architects and engineers: 52 responses	Roles of feasibilities
9	Kgaka (2018)	South Africa	Interviews	Six developers in commercial sector	Feasibilities in South Africa are prone to overestimate the forecasted income. Factors influencing the success of feasibilities in terms of roles
10	Kimaru (2018)	Kenya	Interviews and questionnaires	Real estate developers: 5 interviews and 69 questionnaires. Estate agents: 5 interviews and 36 questionnaires within Nairobi City County	The effect of off-plan sales (including the use of feasibility studies and the developers' perspective)
11	Willemse (2019)	South Africa	Questionnaire and interviews	QS, engineers and project managers responded to questionnaires. Three interviews: 2 QS and 1 project manager	Complete and thorough studies are not conducted in South Africa. South Africa requires the development of tailored procedures/standards for feasibilities. Feasibilities do not follow best practices. Reported on the roles of feasibilities

with contractors and the professional team (Anees et al. 2018; Kimaru 2018). It becomes a tool to manage costs of the project effectively (Perera et al. 2016; Anees et al. 2018; Kgaka 2018; Willemse 2019), to manage project quality (Anees et al. 2018) and to acquire financing (Kimaru 2018). The feasibility study is also used to provide clarity on investment risk (Mukherjee & Roy 2017), to achieve maximum profit, to analyse problem areas and the solutions, to ensure most of the client's requirements are fulfilled (Syed Alwee et al. 2019) and to act as a sound financial turnover mechanism (Anees et al. 2018). It is a document that becomes the business plan as well as a guide to the facility manager during the functional period of the proposed project (Syed Alwee et al. 2019).

Only two of the studies (Kgaka 2018; Willemse 2019) were done in South Africa. There are various studies which comprised interviews, questionnaires and literature reviews. The aim of this study is to expand on the existing knowledge; hence the studies, which comprised literature reviews or questionnaires, do not address the gap explored for this study. Three studies did interviews. Two of these studies (Kgaka 2018; Kimaru 2018) interviewed one of the key stakeholders – the developer; however, they did not address the developers' perspective on the role of a feasibility study directly. The third study (Willemse 2019) interviewed the other key stakeholder – the QS. However, only two QSs were interviewed, which is deemed insufficient. However, in this study, they did not address the QS's perspective on the roles of a feasibility study directly. While the consolidated literature did provide a comprehensive list on the roles of feasibility studies, none of the studies expanded on the existing knowledge regarding these roles, nor did they consider differing perspectives. It is, however, clear from the findings that feasibility studies have multiple roles.

3 Research methodology

Given that the QS and the developer are central to the feasibility process and that this study requires the opposing perspectives on the roles of the feasibilities, a qualitative research approach was followed. Qualitative research is an approach that typically draws on opinions and perspectives of people (Bryman 2016). Furthermore, qualitative research is a suitable method for exploring and understanding problems related to humans (Creswell & Creswell 2017).

The interview technique was followed, which is a purposeful conversation between two or more people and provides an opportunity to collect in-depth data (Saunders et al. 2016). More specifically, semi-structured interviews were conducted. This means predetermined open-ended questions based on a list of topics and main questions that needed to be discussed, thus creating an opportunity to gather the individual's perspectives, preferences and experiences of the key stakeholders (Leedy & Ormrod 2019). The questions sought to find what the role of the feasibility study is to them (each perspective). The interview questions are listed in Appendix A.

Two heterogeneous samples were used to purposively target the QS and developer as the populations that formed part of this study. In this approach, the key variations were identified and the cases differed from each other to a feasible extent (Shaheen & Pradhan 2019). The criteria for the QS's target population included QSs with >5 years of experience in the private commercial sector in South Africa (commercial, retail, industrial, hospitality and bulk residential). The criteria for the developers to be deemed adequate for this research included private developers investing in the commercial, retail, industrial and residential sectors in South Africa, with the main goal of generating a profit. The participants were identified by using a combination of the non-probability purposive sampling method and snowballing. The participants were chosen and not left to chance (Leedy & Ormrod 2019). The size of each heterogeneous sample was guided by Saunders et al. (2016) who recommended the sample size between 5 and 25 and Marshall et al. (2013) who recommended the sample size between 15 and 30. A total of 23 quantity surveyors and 23 developers in South Africa were interviewed online over a period of 5 months in 2020. The sample sizes allowed saturation to be achieved.

Figure 1 designates the QS participant's roles at the company for which they work on the left, and the pie chart on the right indicates the years of experience of each participant. Nine of the participants are either the founder of the company or the sole owner; four participants are in an upper management position; three are associates of a company; six are senior quantity surveyors (including the role of mentor) and only one participant's role is limited to a junior quantity surveying role.

The junior quantity surveyor, however, has 6 years of experience as a quantity surveyor, and eight of the participants have >25 years of experience in the industry. The total experience gained by the participants is 457 years.

Most of the developer participants (nine) are either the sole owner or founder and CEO of a property development company. Four of the participants are in upper management and six are development managers. There is one commercial manager, one project manager and two

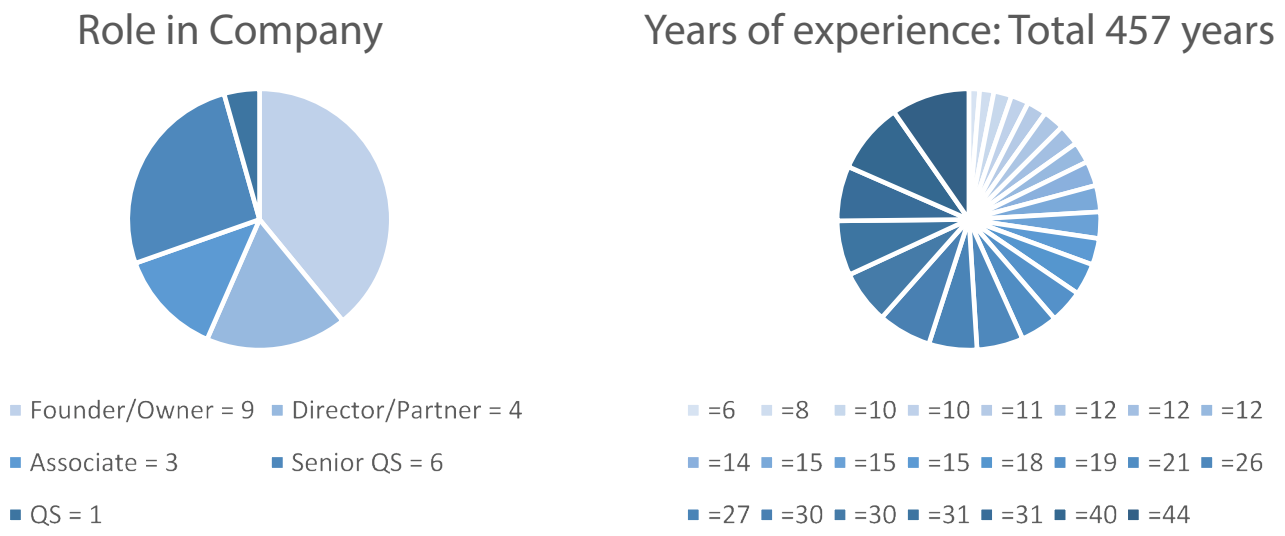


Fig. 1: QS interviews – Pie charts indicating the participant's roles in a company and experience in years.

participants who fulfilled a partial QS role from the developer's perspective. The distribution thereof is displayed in the pie chart in Figure 2.

The interviewer asked short, neutral, open-ended questions; however, no personal identification questions were asked. The interviews were online and recorded, and then transcribed verbatim using 'Otter.ai'. It is an AI-powered transcription and note-taking tool that uses artificial intelligence to automatically transcribe audio and generate accurate, searchable and editable transcripts in real-time. It is designed to enhance productivity and collaboration in meetings, lectures, interviews and other spoken contents. On average, an interview session lasted about 30 min. The recorded files were saved under a pseudonym. The file uploaded to Otter.ai had thus no personal information, while the login details to Otter.ai remained confidential, ensuring the protection of the participants' identity.

A reflexive thematic analysis was followed with the aid of the 'NVivo Software' program. This program is used for qualitative data analysis, aiding researchers in organising, analysing and gaining insights from interviews, surveys, focus groups, audio, video, documents and social media. Through the reflexive thematic analysis of the qualitative data, themes developed at a later stage from the codes while the theme development required considerable interpretive work from the researcher (Braun & Clarke 2021). This follows an unstructured coding process as suggested by Braun and Clarke (2006): The transcripts were coded from beginning to end, while each was systematically and thoroughly read. As each new element arose, a new code was created. As new information emerged, some existing codes were changed and adapted. Themes were developed only after the coding was done. Therefore, no codebook or code framework was followed.

3.1 Reliability of the study

While subjectivity can be viewed as a weakness, Rose and Johnson (2020) explicitly expressed that subjectivity and reflexivity are vital to qualitative research. Additionally, they stated that while subjectivity and reflexivity mean that duplicability or repeatability is unlikely, it is in fact one of the strengths of qualitative research. Different researchers providing a different analysis may provide different insights, which is necessary to understand a particular phenomenon better (Rose & Johnson 2020).

Reliability was obtained by means of sampling sufficiency and saturation (Morse et al. 2002). The interviewees were experts and knowledgeable in the field, as confirmed in the verification questions. This supported the collection of optimal quality data. Furthermore, researcher bias during the interviews was avoided by asking short, clear and neutral questions. Participant bias was avoided by ensuring participant anonymity and using non-obtrusive approaches in the data collection (Saunders et al. 2016). Ethical procedures of the university were strictly followed, and an ethical clearance certificate was obtained prior to data collection. All participants took part voluntarily. Confidentiality was assured and reporting of the provided information was done anonymously.

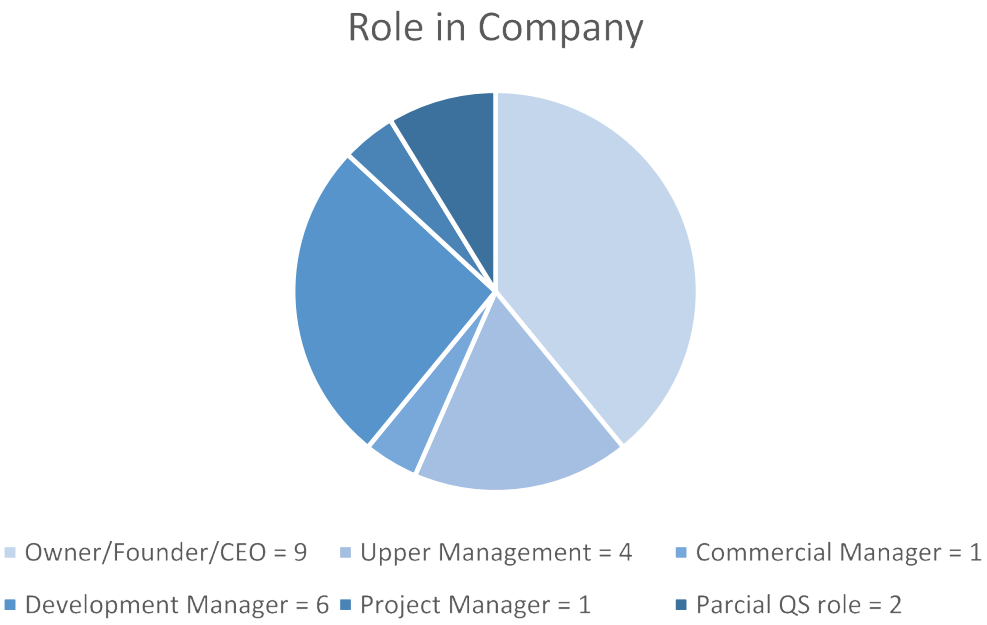


Fig. 2: Developer interviews: The participant's roles in the companies.

4 Findings and discussion

4.1 Findings on the roles of feasibility studies

The findings are presented in Table 2 and discussed later in detail while being linked to existing literature. Column one presents the codes that emerged, column two reflects the number of participants that mentioned the aspect (frequency) and column three reflects a quote from one of the participants.

The codes presented in Table 2 are discussed below in detail as three sections: QS's views, developers' views and aligned views from both stakeholders.

4.2 QS's views

Six roles emerged from their perspective that did not emerge from the developers' interviews, as presented hereunder.

4.2.1 Secure income

The first identified usage of feasibility studies in the interviews is related to how quantity surveyors are dependent on feasibility studies to, first and foremost, secure income: *'Obviously, you want it to work, because that will give you the work' (Q03) and '… generally when it comes to securing income' (Q06).*

The feasibility has a distinct role for QS, and to open doors to new projects for them to provide consultation services it is part of how they generate business. Although this is not a main concern to developers, QSs sometimes manipulate the numbers to indicate a favourable return in order to get the go-ahead on the project (Ramawela 2017). This poses an investment risk to developers that they must be aware of to be able to mitigate it.

4.2.2 Tool to advice

The second usage that appeared in the interviews refers to using it as an 'advisory tool' – *'So, for a QS, the feasibility study would be the ultimate tool, to be able to advise the client and the team, because the team also invest a lot of effort into the project'* (Q02). Participants Q06 and Q22 shared the same opinion as above.

The QS, being the consultant, ultimately uses the feasibility study as a tool to advice, while the developer wants to receive this advice. The QS, therefore, must ensure that the feasibility is prepared in accordance to the advice that the developer requires. It is thus vital that the QS understand the full spectrum of the role that the feasibility study plays on the developer.

Tab. 2: Codes, frequency and quotes

Code	Freq.	Quotes
Secure income	2	'*...when it comes to securing income'* (Q03)
Tool to advice	3	*'The feasibility study would be the ultimate tool, to be able to advise the client'* (Q02)
Early involvement	2	*'QSs are being called in at earlier stages in the projects'* (Q05)
Specialist field	2	*'I think feasibilities is always a very specialised field'* (Q16)
Company success	2	*'The feasibility in the QS firm is 90% of your company's success'* (Q17)
Reputation	7	*'The feasibility study is also linked to the reputation of the QS*' (Q02)
Acceptable depth	1	'*...how much debt could one put into that system*?' (D12)
Negotiations with tenants	4	*'To facilitate deals with tenants*' (D09)
Negotiations for land	3	'*It's in pursuit of acquiring land*' (D10)
Progress and performance measurement	2	'*...to measure our progress*' (D05)
Basis for as-built feasibility	1	'*I then have to finalise what we call an as built feasibility'* (D17)
Manage risks	1	'*A feasibility tends to probably guide you on certain risks*' (D07)
Assurance of return	2	'*A feasibility study for me is to get the proposed return'* (D01)
Business plan	1	*'...it's almost like a business plan*' (D03)
Gate keeper	6	*'The feasibility study is basically the finger on the trigger*' (D05)
Solve problems	1	'*We focus on the commercial solution...'* (D06)
Sensitivity analysis	2	'*Another thing that you can develop from a feasibility is what-if situations and sensitivity analysis*' (Q05)
Value engineering	2	'*And it's very important from a value engineering perspective*' (D20)
Negotiations of professional fees	3	'*...that the fees they included is accurate and was negotiated with the professional team'* (D01)
Acquire financing	5	*'...when you're looking for finance*' (Q19)
Budget	12	'*...it becomes my budget*' (D20)
Cost control	9	'*It's also the basis of your monthly cost reports that you need to present*' (D01)
Decision-making tool	12	'*The feasibility study is the basis for making the decision to go ahead with the project*' (D11)

4.2.3 Early involvement

The QSs mentioned that they are becoming involved much earlier in projects due to the facilitation of feasibility studies: '*I am finding over the years, it's become more and more a powerful tool and more and more important, and QSs are being called in at earlier stages in the projects*' (Q05). This is in contrast to traditional practice, when QSs would join the team after the architects or even be referred by an architect (Q08).

It seems that the role of a feasibility study to the QS goes as far as creating earlier involvement on projects, while this does not concern the developers. Spellacy et al. (2021) conducted a study in the UK and stated that QSs are often being introduced later in the process. This study indicates that traditionally this is the case as well in South Africa, and feasibilities are now creating an option for earlier involvement.

4.2.4 Specialist field

The feasibility study and the expertise around it is rather a specialist field for quantity surveyors. Not all quantity surveyors are equipped to compile feasibility studies: '*On the commercial side as a company we don't do a lot of feasibilities at all*' (Q11) and '*I don't think a feasibility study is a typical QS function. I think "feasibility studies" is always a specialised field*' (Q16).

From the interviews, it became clear that not all QSs have experience in doing feasibilities and it is regarded as rather a specialist field. This specific aspect did not emerge from the developer interviews. The lack of developers

could be because they do not realise that all QS are not equipped for it, and they need to be sure to appoint QSs who do have these skills.

4.2.5 Company success

In the interviews, the feasibility study is often referred to as 'the be all and end all'. It became clear that the success of a quantity surveying firm is heavily reliant on feasibilities: '*So feasibility in the QS firm is 90% of your company's success. It is critical*' (Q17) and '*It's the most important part of that entire … of the firm. The feasibility study is the crux of everything*' (Q21).

The participants made it clear that a feasibility study is critical to the success of QS firms. The feasibility study does not fulfil this role for the developers. Due to it being critical to company success, developers must be aware of this and be careful that QSs do not manipulate feasibilities (Ramawela 2017) for this very reason.

4.2.6 Reputation

The success of a quantity surveying firm is subject to its reputations (Q02, Q03, Q05, Q09, Q16 and Q18). The feasibility study seems to be the centre point of the same: '*The feasibility study is also linked to the reputation of the QS*' (Q02). Ultimately, a good feasibility study means more projects (Q03, Q05, Q9 and Q18) and a faulty feasibility study could be the end of your business relationship with a client, as well as a threat to possible future contracts (Q03, Q05 and Q16).

While this aspect did not arise from the developer interviews, it does seem that the reputation linked to the feasibility study keeps QSs accountable for the most part. Developers, however, should be aware of the QS's reputation and seek to find consultants, who have the correct expertise, to minimise their risk.

5 Developer's views

From the developer's point of view, an abundance of roles emerged that did not appear from the QS interviews.

5.1 Determine the amount of debt acceptable

Interestingly, developers use feasibilities to determine how much debt would be acceptable: '*…how much debt could one put into that system*?' (D12). However, the QSs do not seem to have this focus, which could perhaps sometimes be a specific objective that the developer is looking for. It would benefit the QS to understand that this is an important aspect of the feasibility.

5.2 Negotiations with tenants

Knowing the 'numbers' creates a solid basis for negotiation: '*So, I know the areas where I can negotiate*' (D20), especially to facilitate deals with tenants (D09, D17, D18 and D20): '*Sometimes we have a deal with a tenant that's on a yield-based deal, they will say. If this is the cost, that's the yield, they will pay for it*' (D17). '*It guides me on the revenue side of my development. So once I know my costs and I know what margin I want, it guides me from a revenue perspective, so I know where to pitch the development and whether that's possible or not*' (D20).

This role did not emerge from the QS perspective, while they should have an understanding that this is another role fulfilled by the feasibility. By realising this, they can prepare the feasibility with the correct objective(s) in mind. Using feasibilities for negotiations has been noted in literature by Anees et al. (2018) and Kimaru (2018).

5.3 Negotiations for land cost

Various negotiations can be done by using the feasibility, including the skills to negotiate the cost of the land that needs to be acquired (D09, D10 and D11). '*We start off with a feasibility study on how to service a piece of land*' (D09). '*It's in pursuit of acquiring land*' (D10). It seems that the developers are often purposefully using the feasibility for negotiating land cost. This is another objective that the QS must be aware of in order to prepare the feasibility study optimally.

5.4 Progress and performance measurement

The feasibility seems to play an operational role during the time of construction to the developer. It is used '*…to measure our progress*' (D05) and to facilitate '*performance measurement as well*' (D19).

5.5 Basis for as-built feasibility study

After construction, the developer then uses the feasibility as a basis for the as-built feasibility study: '*And at the end*

of the job on my side, I then have to finalise what we call an as- built feasibility to say, this is the job started. And this is where we hand it over to our facilities guys. And give back to the finance guys the as-built feasibility' (D17).

5.6 Guide to manage risks

Feasibilities serve as a guide for managing risks: '*A feasibility study tends to probably guide you on certain risks*' (D07).

5.7 Assurance of a return

The feasibility assures a return to the developer: '*A feasibility study for me is to make sure that you get your … the proposed return on the investment that you're making*' (D01) and therefore '*they give credibility to your project*' (D04). The developer is exposed to the investment risk and their views highlight this. The QS interviews did not yield any data on the importance of this risk.

5.8 Business plan

For developers, the feasibility becomes the business plan for the project: '*Well for us it's almost like a business plan*' (D03).

5.9 Gate keeper of the investment

It is the starting point of a project/investment and it gets projects off the ground to start an investment (Lock 2020) (D05, D11, D14, D15, D22 and D23): '*The feasibility study is basically, I would say that, the finger on the trigger*' (D05) and '*That's always our starting point*' (D23). While the feasibility is the gate keeper of the investment for developers, it is also the gate keeper of income for the QS.

5.10 Solving commercial problems

The feasibility is used as a tool to solve commercial problems: '*We focus on the commercial solution in trying to really deeply and fundamentally understand what the commercial problem is you're trying to solve*?' (D06).

6 Aligned views

From both key stakeholders, the following seven roles emerged:

6.1 Basis for a sensitivity analysis

From the QS's perspective, it became clear that the feasibility supports a sensitivity analysis. '*Another thing that you can develop from a feasibility study is "what-if" situations and a sensitivity analysis*' (Q05). The developer, however, stated that the feasibility document must have a '*sensitivity analysis*' (D11) included. However, these two views differ in the sense that the QS feels that the feasibility creates a basis for a sensitivity analysis, and the developer sees the sensitivity analysis as part of the feasibility study. This means the developer expects the sensitivity analysis to always be there, and the QS sees it as an optional element.

Literature refers to a sensitivity analysis as one of the six major activities of a feasibility study as best practice procedures (Stefánsdóttir 2015). They also found that only 40% of the private sector's produced feasibilities actually adhere to all the six major activities in Iceland. Furthermore, Willemse (2019) conducted a similar study in South Africa on the same best practice procedures and found that best practice procedures have been neglected, especially the sensitivity analysis. The differing views here clearly indicate that it contributes to the short comings of feasibilities.

6.2 Basis for value engineering

The feasibility is also used as a basis for value engineering: '*And the tool with the feasibility study is that afterwards you can suggest changes to the design to make it either more profitable or more cost effective, which will increase rates of return and profit*' (Q18). This was reiterated by a developer as well: '*And it's very important from a value engineering perspective*' (D20).

Both key stakeholders perceived value engineering as a function of a feasibility study. This is also supported by Anees et al. (2018)'s study conducted in Pakistan. Furthermore, value engineering is one of the services provided by the QS (Spellacy et al. 2021), and both key stakeholders do expect this. However, some QSs do not add value engineering suggestions as part of the feasibility (Q6).

6.3 Negotiations of the professional fees

The negotiations of the fees of the professional team could stem from the feasibility study, as supported by Q10 and Q18: '*You will also do a fee split in a feasibility study, determining who gets what percentage of the fee package on the scheme…*' (Q10). The developer's perspective put even more emphasis on the importance of the fee negotiations and even considered that a successful feasibility is one where '*the fees and stuff that they included is accurate and was negotiated with all the professional teams and they agreed to those fees*' (D01).

Both perspectives understood that the feasibility is used as a tool to negotiate the professional fees. The developers, however, seem to put more emphasis on this particular aspect. The professional fees form part of the total capital outlay of the feasibility (Willemse 2019), while the feasibility is used to negotiate the final amount for fees.

6.4 Acquire financing

A few participants emphasised how important a feasibility study is in the acquisition of financing: '*…which becomes a very important document… when you're looking for finance*' (Q19). Participants Q07, Q09 and Q10 also emphasised this usage. The sentiment was shared by the developers: '*…quite important for bank reasons*' (D15). The specific role of feasibilities is well known by both perspectives. This reflects in literature as well by Kimaru (2018).

6.5 Budget

The feasibility is specifically used as the budget of the project, once it has been approved: '*The feasibility would be your baseline budget and you'd always report against that going forward, and the success of the project is also measured against your base budget, base approved feasibility*' (Q10). Participants Q10, Q13, Q14 and Q15 also indicated that it becomes the set budget for the construction project. The developers (D09, D11, D12, D15, D16, D17, D19 and D20) recognised this to be a valuable role too: '*And so we then start measuring costs, our pre sales, our rentals etc. against that, literally on a monthly basis, so it becomes my budget*' (D20).

Both perspectives seem to recognise the budget as a crucial role of the feasibility, as it was emphasised various times by both key stakeholders. Studies in Pakistan (Anees et al. 2018), Kenya (Kimaru 2018) and South Africa (Willemse 2019) reflected the same. It is thus clear that it is a well-known role of the feasibility, both globally and locally, and by perspectives, i.e., the QS and the client.

6.6 Cost control and reporting

Both key stakeholders prominently indicated that the feasibility becomes a basis for cost control (D02, D03, D08, D10, D14, D19 and D22) and reported: '*It's also the basis of your monthly cost reports that you need to present*' (D01); '*And then from there, we'll manage the feasibility study through our QS reports on a monthly basis*' (D22) and '*… it's the most important management tool*' (Q21). With this specific role of feasibilities, both perspectives are aligned, while also aligning with literature where Perera et al. (2016) emphasised that it is a core cost-management tool.

6.7 Decision-making tool

The core role of the feasibility is to make decisions based on the information it reflects (D10, D15 and D16): '*So that's basically a decision-making tool at the end of the day for an investor property development developer or a property investor*' (Q01) and '*It is sort of the founding document and that's on which decisions are made*' (D16).

There are various different decisions required. First and foremost, the feasibility study impacts the initial investment decision to proceed (Mackenzie & Cusworth 2007; Heralova 2017; Lock 2020) (D01, D03, D05, D08, D11 and D21). '*The feasibility study is the basis for making the decision to go ahead with the project*' (D11) and when to proceed: '*The question is, should we do it then or should we wait?*' (D07). Clarity on the type of project/how to proceed (Lock 2020): '*Once I'm invested in the land, I'm going to go forward with the project, but it's how it's done. It's how my developments are going to be done*' (D20). Ultimately, it facilitates a continuous decision-making process (Mukherjee & Roy 2017; Kimaru 2018; Dagne 2019) (D03 and D11). '*It's basically what you base your decisions on. I refer to it probably for all the big decisions that we make on a development*' (D03). Both perspectives recognised this core role and it is supported by the aforementioned literature.

7 Venn diagram

From the roles that emerged during the interviews, it became clear that the developers use feasibilities for a much wider range than what QSs do. The Venn diagram in Figure 3 illustrates the difference in roles as well as where the roles overlap.

Importantly, since the QS is the consultant and the one compiling the feasibility, the intended roles of the

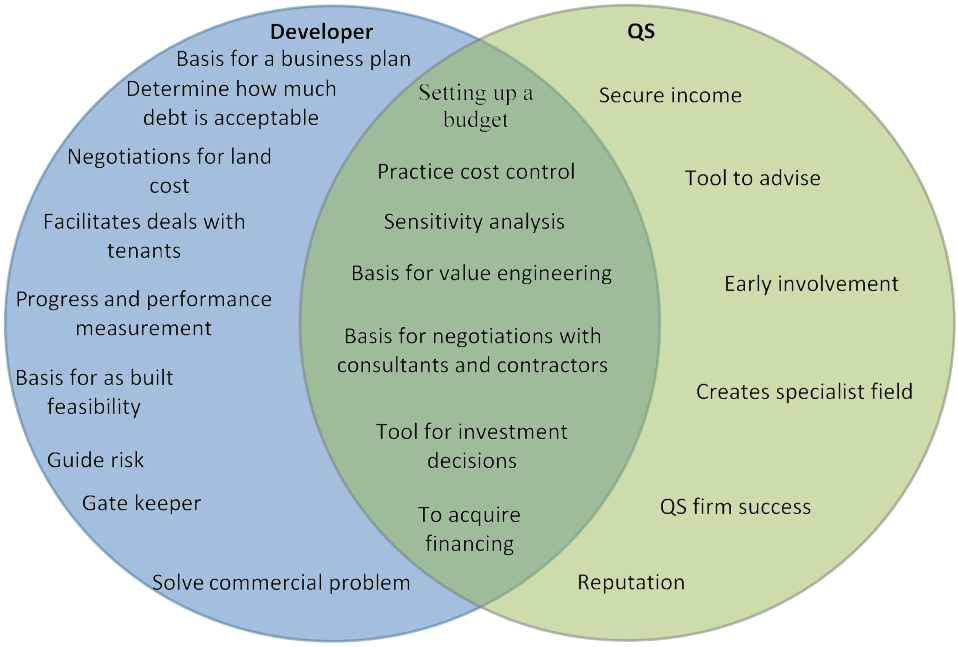


Fig. 3: Roles of feasibilities.

feasibility by the developer should be known to the QS to ensure compatibility. It is the QS's responsibility to ensure that the views are aligned, although it seems that the QSs do not engage in this. The feasibility also plays a role in the success of QS firms in terms of their reputation and income. The feasibility forms the basis of many aspects, for example, a business plan, progress measurement, value engineering and negotiations. Furthermore, the developer is concerned with operational matters like using it for 'as-built' purposes and performance management. A prominent QS role is to secure income and the ability to create early involvement of the QS. The QS's concerns are much more directed at what the feasibility can provide them with. This misalignment in perspectives of the quantity surveyor who prepares and communicates feasibilities to the developer, who in turn makes the investment decision based on this communication, could cause miscommunication and ineffective feasibilities.

8 Conclusion

The main objective of this study was to present the roles of feasibilities from the two key perspectives, i.e., QS and real estate developers, to gain an understanding of the differences in the perceived roles. Data were collected through semi-structured interviews from both key stakeholders, followed by a reflexive thematic analysis and interpretation.

The findings suggest that the feasibility plays a much bigger role to the developer than the QS in terms of functionality. The developer makes use of the feasibility from the beginning of the project to gain financing and to do negotiations in terms of land acquisition, who then uses the feasibility for operational purposes and even after construction is completed. On the contrary, the QS is mostly concerned about what the feasibility can do for them in terms of income and job opportunities. The aligned roles that emerge are the mainstream ideas of what the feasibility study's role is and that includes investment decision-making, budget and cost control. This clear misalignment in perspectives could contribute to the existing issues of feasibility studies.

8.1 Implications

Practical implications could involve improved feasibilities from the QS profession, as they can now have a better understanding of what the developers expect from it and can therefore prepare it to adequately suit its roles. In contrast, the developer can understand what drives the QS and can better anticipate the risks that it accompanies. Additionally, this study helps expand the current knowledge on the roles of the feasibilities, which can be tested through quantitative studies (theoretical implementation).

8.2 Limitations

This study is limited to the private commercial real estate development sector in South Africa. Future studies can focus on a quantitative study that tests the new theory presented in this paper. A new location and sector should also be considered.

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Appendix A: Interview Questions

1. Verification questions
1.1. Tell me about your career?
1.2. Kind of projects?, etc. Complexity/value/amount? Stakeholders/location?
1.3. What has your role been in the firm?
2. Main questions for QS
2.1. What do you understand a feasibility study to be?
2.2. What do you consider a **successful** feasibility study to be?
2.3. Tell me about the role that a feasibility study play for a QS firm
2.4. What sort of impact do feasibility studies have on investment decisions?
2.5. Tell me about your approach when you are working with a feasibility study. What is the first thing you do when you start preparing a feasibility study up until the last thing before you archive it
3. Main questions for developer
3.1. What does a feasibility study **mean** to your developments?
3.2. What do you **use** a feasibility study for?
3.3. So what do you **expect** from a feasibility study? (What do you want to see in one?)
3.4. What is the first thing you page to?
3.5. In your opinion, what separates a good feasibility study from a bad one?
3.6. How and when does a feasibility study influence your **investment decision**?
3.7. Who is typically involved when it comes to the preparation and interpretation of your feasibility studies?