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DEVELOPMENT OF AN ENTERPRISE ENGINEERING STRATEGY EXECUTION FRAMEWORK

Towards a Generic Framework
to Guide and Sustain Enterprise Strategy Implementation

Thabani B. Mudavanhu
(Candidate Student # 1498711)

School of Mechanical, Industrial and Aeronautical Engineering
University of Witwatersrand
Johannesburg, South Africa

Supervisor: Dr Bruno Emwanu

A thesis submitted to the Faculty of Engineering and the Built Environment, University of Witwatersrand in fulfilment of the requirements for the degree of Doctor of Philosophy in Engineering

30 September 2024

Motivation

“I [shall study] and prepare myself and someday my chance will come”

- Abraham Lincoln - *16th President of the United States of America, March 4, 1861*

Dedication

Consistent with the researchers' quest to understand the ever-increasing complexity in today's world, this is my third effort to build frameworks that appeal to the complex world we found ourselves in [from Reliability Centred Maintenance (RCM); to Systems Engineering Approach (SEA) and now Enterprise Engineering (EE)].

This thesis is dedicated to my late father – Jackson Mudavanhu, who to this day still, I am yet to understand, but whom the genes of all this effort can be traced back to. A simple but sophisticated man who lived in a simple and limited world but whose vision and decisions - calculated or otherwise resided beyond the less complex world of his era.

Acknowledgements

If I have seen a little further than others, it is only by standing on the shoulders of giants –
Sir Isaac Newton wrote in a letter to Robert Hooke, in 1976

This is my third effort in developing unique frameworks that are pitched towards getting things done – *execution*. First it was on institutionalising reliability centre maintenance (RCM) in manufacturing systems, then designing a framework of application of the systems approach in non-traditional application areas. Now this effort is on debunking strategy execution and submitting a whole new framework based on a different theoretical lens – enterprise ontology.

In submitting this work, I am indebting to my academic advisor Dr Bruno Emwanu for guiding me closely and yet allowing me to venture unchartered territories without restricting me. I appreciate the commentary, and all the hours spend on this work. Special mention goes to early contributors and advisors: Philip Morkel, Dr David Trafford and Chris Hallam for facilitating the Strategy Execution Round Table chaired by Dr David Trafford which several strategy execution experts all over the world participated. A lot of insights that went into this work were also picked from these forums.

This work would have not been possible without the Delphi study experts who dedicated their time to participate. Thank you all.

I am indebted to various colleagues and professional who validated this work and provided various editorial assistance: Allen Maendayi; Kundayi Mukariri; Sharleen Sigauke, Taonga Mukandakanda, Takunda Mamutse, and many others.

My gratitude to all who participated and contributed to this study. Lastly, I thank my family for being patient with me throughout this journey.

God is great, and all the time!

Abstract

Even with a myriad of implementation models from consulting firms and academia – the success rate of *Strategy Execution (SE)* remains low. Extant literature in strategy execution exposes inadequacies of theoretical foundations for the assertions outlined in current SE models. In addition to this, where there is some explanation, the theory is inconsistent, and discipline biased which limits development of general application theory. Further to this 'enterprises' as the housing (the system of interest) from which a strategy is launched rarely receive the level of attention and rigor that technical systems do. Against this background, this study sought to understand how the success rate of SE can be improved through the application of *Enterprise Engineering (EE)* principles and practices. The premise being that the challenges in implementing strategies in any organisation are too an extent related to the design of the enterprise. Consequently, the common challenges attributed to the failure in SE can be linked to the enterprise design and as such organisations can, to an extent be designed to influence SE.

Considering the complexity / greyness of the study area and limited literature in the relatively new discipline of EE, specifically *enterprise ontology theory* (the theoretical lens of this study), a structured literature review was used as the basis for a Delphi study. A two (2) round Delphi study was conducted with experts in the field to determine and validate the critical dimensions in Strategy Execution. Thirty-one (31) and twenty (25) experts participated in Delphi Round 1 and 2 respectively. The experts came from four regions of the world and were largely academics, board members and executive leaders and practitioners many of them tasked with either overseeing or leading strategy execution.

The study revealed that there is a significant relationship between the design of an enterprise at the deepest level (the ontological layer) and the seven (7) aggregated themes that were synthesised in this study and are linked to constraining successful SE – (a) the strategy itself, (b) leadership, (c) people (the team); (d) effective communication; (e) organisational capabilities (f) organisational enablers and (g) organisational culture. The study proposed a generic enterprise engineering-based strategy execution (EE_bSE) framework anchored in the deepest layer of an organisation, the ontological layer - the level where companies transact (cooperate and enter into agreements). Consequently, the study confirmed the proposition that 'organisations can, to some degree, be designed or re-engineered for strategy execution'.

This study demonstrates how EE can be useful in aiding Successful SE. An example of a key take-away include the need to check for execution readiness at the ontological layer and

eliminating any construction flaws (errors) that will later reflect as ‘common’ challenges. For example, lack of commitment [people issues] and lack of an implementation [culture issues] are flaws associated with SE that can be traced and re-engineered at the ontological level. This study adds to on-going work to confront the SE challenge and demonstrates the relevancy and pervasiveness of the application of EE.

Key words: *Strategy Execution, Strategy Implementation, Enterprise Engineering, Enterprise Ontology*

Declaration

PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

I **TABANI MUDAVANHU** (Student number: **1498711**) am a student registered for the degree of Doctor of Philosophy in the academic year 2024

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.
- I have included as an appendix a report from "Turnitin" (or other approved plagiarism detection) software indicating the level of plagiarism in my research document.

Signature:  Date: **30 Sept 2024**

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List of Key Terms

Below are some key working definitions of key terms that focus this study.

- An **Enterprise** is a complex social-technical system concerning human beings and technology that interact in support of the common mission (INCOSE, 2017). Note that in this report, the words ‘enterprise’ and ‘organisation’ are used interchangeably.

- **Design Principles**: there are normative principles on the design of an artifact, declarative in nature such that they restrict design freedom (Greefhorst & Proper, 2011 p,187).

- **Enterprise Engineering** (EE) is a body of knowledge, principles, and practices to design an enterprise (Janssen, 2016; Hoogervorst, 2018)

- **Enterprise Ontology** is a formal explicit specification of conceptualisation of an enterprise to aid understanding and operations of it by focusing on the implementation independent essence of the enterprise – the ontological layer (Janssen, 2016; Hoogervorst, 2018)

- **Construction Model –** of an organisation is made up of all essential cooperation arrangements (agreements / transactions) together with their patterns and interrelationships (Dietz, 2006)

- **Organisational Design** - for this study, organisation design will be described as a process of developing a blueprint to ensure that the organisation has suitable structures and resources to execute the intended strategy (Junginger, 2017; Alter, 2017)

- **Ontological Model –** is a construction model of an organisation in terms of the transactions among the actors that is fully independent of its implementation (Dietz, 2002; Gonçalves, et al., 2013). This model exists at the deepest level of an organisation (Janssen, 2016).

- **Implementation Model –** it is the construction model containing all details necessary for implementing the system (or realising the system purpose) (Dietz, 2006). As such this model is at the top / surface (visible to many)

- **Transaction** – is the way in which agreements are brought about – a sequence of acts that has a basic transaction pattern with three consecutive phases*: the order phase, the execution phase,* and *the result phase* (Dietz, 2006; Janssen, 2016) In other words, transactions are the building blocks of an enterprise (Fernandes & Tribolet, 2021)

- **Strategy -** is a set of choices that gives a cohesive response to a specific challenge that will define how an organisation is going to 'win' (be / remain competitive). Element extracted from (Rumelt, 2011; Trafford & Boggis, 2017; Speculand, 2017)

- **Strategy Execution** – is the process of operationalising the strategy to ensure the desired future state of an enterprise is achieved and sustained. Elements extracted from various authors (MacLennan, 2011; Ehlers & Lazenby, 2012; Friesl, et al., 2021). Note that **–** in this study Strategy Implementation and Strategy Execution are used interchangeably.

List of Acronyms

CM	Construction Model
CxS	Complex System
EA	Enterprise Architecture
EE	Enterprise Engineering
EE_bSE	Enterprise Engineering *based* Strategy Execution framework
EO	Enterprise Ontology
EOT	Elementary Ontological Transaction (the basic transaction)
ExCo	Executive Committee
KPIs	Key Performance Indicators
KRAs	Key Result Areas
IT	Information Technology
ICT	Information & Communications Technology
OM	Ontological Model
OD	Organisational Design
PM	Process Model
PMO	Project Management Office
S-as-P	Strategy-as-Practice
SE	Systems Engineering
SE	Strategy Execution
SteerCo	Steering Committee
SI	Strategy Implementation
ST	Systems Thinking
Tx	Transaction
VSM	Viable Systems Model

Chapter 1 – Introduction

"Without leaps of imagination or dreaming, we lose the excitement of possibilities".

Gloria Steinem (2017)

This research is about the application of enterprise engineering principles and practices to the strategy execution problem. This chapter sets the context and provides background information for this study. It also provides the motivation and importance of the study. An outline of the write-up is displayed as a roadmap at the end of the chapter for easier navigation through the thesis.

1.1 Research Background and / Context

The case for lack of success or competency in strategy execution (strategic initiatives implementation) is well reported (MacLennan, 2011; Radomska, 2014; de Vries, 2015; Pretorius, 2016; Friesl, et al., 2021). The need for more pragmatic ways of getting things done is also well documented (Bossidy et al, 2002, 2009; Getz & Lee, 2011; Lowy, 2015; Sull et al., 2015; Srivastava & Sushil, 2016; Obeidat et al, 2017, Bawtree & Young, 2022).

Crainer & Dearlove (2017), renowned contributors to the Thinkers50 an agile alliance between the Boston Consulting Group and the Project Management Institute (PMI) classify strategy execution initiatives into two main categories – the structural perspectives (initiatives) and the interpersonal process perspectives (initiatives). According to them structural initiatives deal with organisational structure alignment and control mechanisms while the interpersonal initiatives deal with the leadership and people issues (ibid). Most of these initiatives or organisational efforts have tended to lean on individual prescriptions to address organisation specific weaknesses. Some of the interventions include an emphasis on human resources competency (Bossidy et al, 2009); organisation culture (de Vries, 2015); leadership (Harvard Business Review, 2015); setting smart targets (KPIs) (Radomska, 2014); building complex IT systems (Patten, 2015); IT governance; (Srivastava & Sushil, 2016); process improvement (optimisation) initiatives and systems enhancements among many initiatives (Obeidat et al, 2017). However, whichever way, these interventions are administered, statistics still show that as much as two-thirds (2/3) of strategies fail in execution. An investigation into why CEOs fail

and are replaced also showed that 70% of the cases failed on execution (MacLennan, 2011). Fortune magazine as quoted by MacLennan, (2011) reported a thought-provoking observation that investors rarely have problems with companies' strategies but rather they are looking for successful execution.

It follows, that strategy execution is an important element of strategic management. Strategy execution has been flagged since the early 2000s as the biggest issue facing organisations and is a still major issue (Bossidy et al, 2002, 2009; Patten, 2015, Obeidat et al, 2017). Since then, several authorities agree that it is one area that has not been well explained nor given due attention as compared to strategic planning (Welch, 2009; MacLennan, 2011; Lowy, 2015). The referred to 'due attention' pertains to how the leadership view execution. Most leaders agree on the importance of execution but view it as a tactical side of the business (Welch, 2009; MacLennan, 2011) and therefore delegate it, while they focus on the so-called 'bigger issues', implying strategy development. Hence little, to no resources, training, or efforts are channelled into execution initiatives. However, the consequences of poor execution are felt the most by the CEO or the leadership as explicitly stated by Welch (2009 p.21) '… execution is the job of a business leader'. Several other authorities agree (Lowy, 2015; Sull et al., 2015; Musawir et al, 2017, Bawtree & Young, 2022). However, literature-based evidence has shown to the contrary of what transpires in practice. Execution is left to be the responsibility of a project manager and or program manager (PMI, 2017) or some other middle management function (MacLennan, 2011; Obeidat et al, 2017) who has other KPIs linked with more "core business" functions or portfolios and hence does not have leeway or the support to confront the depth or complexity of execution (Patten, 2015).

Strategy Execution research has generally been conducted in silos in different disciplines including management science; financial science; industrial engineering; information management; marketing management, social science etc. (Lapalme, 2017). To an extent, this has been driven by the fact that strategy execution is a subject without clear boundaries (MacLennan, 2011; Lapalme, 2017). This absence of a clear 'home' limits the benefits inherent in centralized joint research efforts and introduces discipline bias and hence unintended avoidable complexities that come when general application of theory is sought. The fact that strategy execution research has been conducted in silos also explains the span of the importance of strategy execution – which sees no discipline (Radomska, 2015).

It, therefore, can be argued that to better understand strategy execution one has to find a fitting domain to house and develop the theoretical foundations. It can also be contended that disciplines like industrial engineering, systems engineering, and enterprise engineering are more suited to extract the underlying structure of strategy execution. This is because they are by design multidisciplinary and are anchored on both design and engineering principles which allow the DNA of any system to be exposed. Of these three disciplines **enterprise engineering** (EE, hereafter) is the newest and more suited as it focuses on the enterprise as the system of interest zooming into its deepest layers (Janssen, 2016). Systems and Industrial Engineering are more pervasive and focus on optimising wider systems.

Enterprise engineering (EE) is an emerging discipline seeking to cover the gap of intervention without a complete picture of the enterprise design elements. EE has been defined variously in literature but suffice to frame this thesis proposal, it can be described as a body of knowledge, principles, and practices to design an enterprise (Janssen, 2016). Wherein the enterprise itself is a complex social-technical system concerning humans (people) and technology that interact in support of the common mission (INCOSE, 2017).

Preliminary literature review in strategy execution showed limited research on holistic vehicles to drive execution or execution-centric strategy implementation frameworks. This could be attributed to the fact that enterprises as the housing (system of interest) from which a strategy is launched rarely receive the level of attention and rigor that technical systems do. This point of view is consistent with Pennock & Rouse (2016) who argue that at a high level, an enterprise is no different to a traditional engineered system. An example of a technical system could be a power plant, wherein an enterprise is considered a social-technical system because of the human element (Janssen, 2016; Pennock & Rouse, 2016). It should be noted at this stage that should one require to modify or introduce enhancements to a technical system like a power plant mentioned above, for efficiency or whatever reason, it is a requirement in the engineering profession to go back to the basics of engineering. That is, for example, to trace the impact of enhancements to a power plant, one should always refer to the engineering drawings, process flow diagrams (PFDs), piping and instrumentation drawings (PI&Ds) among many process/ plant documents and carry out different mandatory steps – for example, HAZOPs (Hazard & Operability study), design reviews, alike. This level of detail resulting in 'being in control' is what makes technical systems resilient and easy to manipulate with high confidence levels.

1.2 Purpose Statement

The purpose of this study was to understand how the success rate of Strategy Execution can be improved through the application of enterprise engineering principles and practices. This then necessitated the quest for enhancement of the theory of strategy execution anchored on the theoretical foundations and principles of enterprise engineering.

1.3 The Knowledge Gap

Strategy execution has been addressed variously in literature as explained in the background (section 1.1). The dominant schools are – *a) the School of SE Heuristics; b) the School of Specific Challenges / Issues – based Solutions; c) the School of SE Frameworks and d) the School of Guided Performance Metrics.* These schools are explained below,

a) The *school of heuristics* provides guidelines on how to execute strategy based on observations/ experiences over time. Several authorities present guidelines or rules of thumb (Bossidy, 2009; Keywood et al, 2014; Getz & Lee, 2018). The focus of this school is on prescriptive building blocks to guide execution. This serves as a quick reference but lacks theoretical foundations.

b) The *School of Specific Challenges / Issues – based Solutions* places its arguments on tailored solutions for specific challenges or dominant factors in the enterprise of interest. The premise here is that one should appreciate the issues/ challenges possibly perceived or known impacts before intervention. This is the most dominant school in literature (Kazmi, 2008; McLennan, 2011; Grant & Young, 2014; Hyvari, 2015; Harvard Business Review, 2015; Srivastava, 2015; Musawir et al, 2016, Herman et al, 2016; Obeidat et al., 2017; Duggal, 2018). This provides useful information to highlight problematic avenues and focal points as it is largely case specific and research based – however, it does not address the enterprise's structural elements at the deepest level. Hence there is a risk of prescribing solutions based on symptoms and not real problems.

c) The third school is the *School of Frameworks* – this is also dominant in literature and widely used, (MacLennan, 2011; Obeidat et al, 2017; PMI, 2017, Hayes, 2018). It is largely developed from action research and of note is the McKinsey 7-S Framework and the Organisational Project Management [which links Strategy, Portfolio,

Programmes, and Projects] (PMI, 2021). The emphasis on these is on creating alignment of key elements (e.g., structure; processes, values). Even though it addresses the process level, this school also does not go deep into the essence of the organisation – the transaction level (Janssen, 2016).

d) The fourth school is the school of Guided Performance Measurement to drive execution – the focus is on key performance indicators / areas (KPI's/KPA's) and related metrics is to assess the effectiveness of strategy execution (Harvard Business Review, 2015; Creelman & Wiraeus, 2019). Kaplan and Norton's balanced scorecard has been commonly used for this and sometimes used together with the McKinsey 7-S framework (McKinsey & Company, 2018). The weakness of this school is also that it emphasises much on measurement and status checks ignoring the deepest layer in the organisation – the ontological layer (Dietz & Hoogervorst, 2013; Janssen, 2016).

It can be argued that the above schools and by extension the current efforts to address the strategy execution challenge are appropriate for,

- high-level periodic status review of the strategic execution efforts
- indicative guide on the impact of change
- high-level "as is" check of the current situation (the obstacles of strategy execution
- indicative guide on how well an organisation is positioned to achieve its goals.

These models have been contended to help organisations understand how to get from where they are 'now' – the 'as is' status to where they want to be – the 'to be' status. However, because of the absence of solid theoretical foundations, the confidence level of this step change cannot be assured. Based on information presented so far in previous sections and from the strategy execution schools outlined above, it can be argued that the complexity of strategy execution is in five (5) areas: (1) **Diagnosis** of strategy execution problems (issues/ challenges); (2) **Identification** of the barriers that prevent successful strategy execution; (3) **Bridging the Gap** between Strategy and operations (translating objectives into actions); (4) **Readiness of an Enterprise to adopt** a new (or the prescribed/ intended) strategy and (5) **Effectiveness** or **Measurement** of the strategy execution effort.

Considering the above proposed categorization, the schools of thought for strategy execution presented above address to an extent items 2; 3; and 5 but do not adequately address items 1 and 4. What is absent in the schools is,

1. Adequate theoretical foundations for the assertions outlined in strategy execution models and where there is some explanation the theory is not consistent as the research efforts have generally been conducted in silos in different disciplines.
2. The analysis at the requisite depth (the deepest layer) in an enterprise to reveal the essential structure and therefore the intricacies of an organisation's processes and transactions.
3. A holistic view ('wiring diagram') of an enterprise (an analogy being the piping and instrument diagrams (P&IDs) of a power plant which allows a plant engineer to have a 'state' of being in control and therefore have the required confidence to manipulate the plant operations at high confidence levels.
4. Capability to bring the requisite visibility and clarity on the construction, construction elements, and construction flaws (if any) of the enterprise and therefore have the basis to judge suitability and probability of success of the intended strategy.

1.4 Motivation and Importance of the Study

1.4.1 Motivation of the Research

Strategy execution remains a challenge for many organisations and as outlined in the previous sections, evidence suggests that the success rate has not significantly improved over the past decades. Some of the reasons theorised with traces of evidence in extant literature include the arguments that (a) there is more to strategy execution than currently perceived (Speculand, 2017; Bawtree & Young, 2022); (b) the 'traditional' view of strategy execution which centres on 'good' project management and/ or change management framework seems inadequate as statistics still show that as much as two-thirds of strategies fail on execution (MacLennan, 2011; Heesen, 2016); (c) Organisations (including their suppliers and partners) have become more complex, which in turn makes the successful development and execution of strategy more difficult (Jackson, 2019; Pavlov & Micheli, 2023).

As if these reasons are not enough – the approaches to strategy development and execution have not significantly changed over recent decades. It was also established that guiding frameworks for implementing strategy have largely been developed independently and are not convincingly grounded in theory hence they are inconsistent (Friesl, et al., 2021). Further to this 'enterprises' as the housing (the system of interest) from which a strategy is launched rarely receive the level of attention and rigor that technical systems do (Janssen, 2016).

This thesis posits that the emerging discipline of Enterprise *Engineering* is better positioned to adequately address the issues outlined above. Notwithstanding the imperfections and limitations of any relatively new approach (EE included) there is a strong case for using EE in uncovering the landscape for strategy launch towards successful and sustainable strategic initiatives execution.

1.4.2 Potential Benefits

The study intends to contribute to resolving the now commonly accepted industry (public and private sector) problem of having a supposedly elegant well thought strategy and strategic intents but failing in execution (implementation). The researcher carried out an in-depth literature examination to appraise the status quo and explore theory gaps to better understand execution in complex systems like enterprises and then design appropriate frameworks to manipulate and drive execution. In other words, the essence of this research effort is anchored on three premises, namely

1. there exists a gap (strategic execution gap) in theory which if explored and further developed amid the myriad of related studies (strategy, operations management, programme & project management, systems engineering, and enterprise engineering) will provide the needed foundational theory for an execution-centric enterprise engineering framework.

2. Phenomena that are not fully understood cannot be properly addressed (intervened into to resolve, dissolve, or solve problems). It also follows, that such phenomena cannot be improved, enhanced, or coherently and consistently managed.

3. Successful execution of enterprise initiatives (strategy, programmes, and projects) does not occur incidentally but must be intentionally designed. It follows that organisations must be able to thoroughly understand the architectural variables to the extent of tweaking or manipulating certain variables as required to influence performance or the outcome - the same way one can change a key variable in a hydraulic circuit to influence flow hence the hydraulic performance of that system.

In summary, the researcher considers that there is a gap in theory, that which if understood paves the way to design generic enterprise-wide strategy execution frameworks to drive execution.

1.5 Statement of the Problem

The current strategy execution frameworks and approaches have persistently failed to address the problem of implementing strategy (Lowy, 2015; Sull et al., 2015; Musawir et al., 2017, PMI, 2017; Bawtree & Young, 2022; Pavlov & Micheli, 2023). The current approaches which are largely experienced – and case-based implementation frameworks – aided by heuristics are not theoretically grounded nor are they firmly backed by empirical evidence (MacLennan, 2011; Janssen, 2016; Friesl, et al., 2021).

There is also limited theoretically grounded evidence of research on why companies are failing to deliver or execute strategic initiatives (Patten, 2015; Speculand, 2017; Dietz & Mulder, 2020). In addition, there is evidence of inadequate investment of time and effort to understand the challenges and the underlying reasons why execution has a high failure rate (Wildburger & Strohhecker, 2016; Musawir et al., 2017; Jarzabkowski, et al., 2019; Friesl, et al., 2021). Where there is some progress in developing theory around strategy execution, it is largely discipline biased.

The advent of Enterprise engineering and the current research effort in this multi-disciplinary domain provide an opportunity to house the necessary theoretical foundations to understand, design, and model strategy execution. The applied engineering principles will enable more objective and theoretically grounded implementation models. This research seeks to cover this gap and contribute to the advancement of the discipline of enterprise engineering by providing pragmatic solutions to the strategy execution challenges.

1.6 Critical Research Question & Propositions

The study seeks to answer the following research question.

> What Enterprise Engineering principles and theoretical foundations can be harnessed to improve the success rate of Strategy Execution?

1.7 Research Objectives

The overall goal of this study was to develop an Enterprise Engineering - based Strategy Execution framework.

To get to this end, the following theoretical objectives were pursued,

1. To identify current issues /challenges in strategy execution.
2. To establish the extent to which Enterprise Engineering principles and theoretical foundations can be useful in developing a framework to drive strategy execution.
3. To develop an Enterprise Engineering *based* Strategy Execution (EE_bSE) framework.

1.8 The Research Propositions

A proposition is a tentative logical supposition that describes the relationship between constructs (Gravetter & Forzano, 2003; Leedy & Ormrod, 2015). It helps the research effort in three ways (Leedy & Ormrod, 2015, Yin, 2016): (a) it provides a tentative explanation for the phenomena under study; (b) it may give hints to possible sources of information for solving the research problem and (c) it gives guidance on the approach to data collection and analysis.

A good proposition is founded on the logical conclusion of a logical argument (Gravetter & Forzano, 2003). The proposition of this study was developed reflecting on these sub-propositions (P_1 to P_3).

This researcher posits that,

> **Organisations can, to some degree, be designed or re-engineered for strategy execution.**

This proposition led to the following sub-propositions: P_1 to P_3,

P_1 in any enterprise setting, there exist fundamental elements that drive Successful Strategy Execution.

P_2 in any enterprise setting, there is a relationship between Enterprise Design and Successful Strategy Execution

P_3 deliberate engineering / re-engineering of the relevant Enterprise Design components (the inner structure – the ontological layer) will enhance strategy execution or at least indicate whether the organisation can handle the prescribed strategy.

1.9 Delimitations & Scope of the Study

The research focused on gaining insight into the organisational design at the elementary level to develop robust and comprehensive enterprise engineering-based theory for strategy execution. As such, the focus is on theory development and not application. Accordingly, the emphasis was on unpacking the underlying structure, namely - the construction elements of an enterprise at the deepest layer (the ontological layer) to understand how that can be designed / or redesigned to influence strategy execution.

This research did not look at the complexities of strategy or strategies in depth, nor their types, forms, or complexity degree. One of the key assumptions as stated below was that - the strategy has been well planned, correctly packaged, and timely launched (or the launch will be timely). The study did also not focus on the people factor nor the resultant cultural influence but rather focused in more on the organisational design elements that influence the desired performance culture (committed and inspired teams).

The main components in scope include locating strategy execution in the realm of strategic management, a reflection on the issues; challenges and limitations of current strategy execution efforts; the strategy itself (the quality of the strategy and resultant strategic objectives and its impact/ influence on implementation); strategy formulation and its link with implementation; strategy execution inherent complexities; the environment of strategy execution; current/ common strategy execution frameworks; the role of project management in strategy execution; organisational design and governance – albeit limited to introductory remarks on enterprise governance as a vehicle to introduce enterprise ontology a key theoretical foundation of this study. This is because thesis recognises that the governance themes are pervasive, and such a study will digress this focused effort. Consistent with the purpose of this study, this work will also cover the role of enterprise architecture; the nature of enterprise engineering (enterprise ontology) and the realisation of this theory: modelling of an organisation at the ontological layer. Elementary construction flaws or errors in design at the ontological level for any organisation will also be comprehensively discussed. For the sake of ensuring that the thesis remains focused, it will also not cover aspects of measuring the Strategy Execution effort (the current approaches, the balanced score card and the role of Digital Capabilities).

The thesis recognises that enterprise engineering is a discipline that can be easily confused with organisational design – rightly so as both disciplines are centred on the design of enterprises although focusing on various levels of the organisation. As such, the researcher is obliged to

reflect on organisational design and how it relates with and/or complement enterprise engineering. Further to this, because enterprise engineering in analysing enterprises requires modelling starting with the primary 'transactions' at the ontological layer as will be shown in chapter 2 of this report, necessitates the thesis to reflect on the Transaction Cost Theory (TCT) and its differences with the referred to the view of 'transactions' from an enterprise engineer perspective. Consequently, it is also important to say upfront that this study will also not cover organisational behaviour theory but will focus on analysing organisation at the deepest layer – the ontological layer and how that can be designed or re-designed to influence strategy execution. Because of the continued use of the word 'transaction' in enterprise engineering literature, Transaction Cost theory can easily be confused to imply the same. In EE, a transaction refers to the way in which agreements are brought about in other words, a sequence of acts that has a basic transaction pattern with three consecutive phases: the order phase, the execution phase, and the result phase (Dietz, 2006; Janssen, 2016). On the other hand, TCT, as proposed by Oliver Williamson in the 1970s theorised the basis on which activities in an enterprise can be internalised or externalized and the author viewed 'transactions' broadly as transfer of good or services across interfaces (Greve & Argote, 2015). The criteria being that when transaction costs are high – the appropriate decision is to internalise within a hierarchy and when transaction costs are low, the fitting decision is buying the goods and services (ibid). Even though the focus of TCT is mainly on Transaction Cost economics, just like EE, this theory puts 'transactions' at the centre of enterprise activities. This study acknowledges the link of TCT with the theoretical underpinning of enterprise engineering but departs from this theory as EE focuses on the ontological layer (the deepest layer in the organisation) as will be explained in next chapter – Chapter 2. As such, this study will not focus on the TCT, with its related wide scope, but will underpin this work on the Enterprise Ontology (EO) theory [that is the theory that explicitly reveals the construction model of an enterprise at ontological layer to aid understanding and operations] as will be discussed in the next chapter.

1.10 Assumptions

Below are some key assumptions for this study. Note that the four (4) assumptions are further enhanced later, and more assumptions included as detailed in Chapter 3 – section 3.2.2.

a. Strategy Execution – can be distinctly located within the realm of strategic management efforts to deliberately influence outcomes.

b. Enterprises can be studied by using engineering methods through which their inner workings ('the construction elements') can be revealed, visualised and flaws exposed, and possibly re/engineering efforts administered.
c. The strategic intent or the intended strategy to be implemented is the 'correct' approach (or best path) for that specific scenario in a specific enterprise and at that point in time.
d. The Delphi exercise /study as the primary research instrument comprehensively covers and addresses the research question.

1.11 Structure of the Thesis

The structure of the thesis is outlined in Figure 1.1 on the next page.

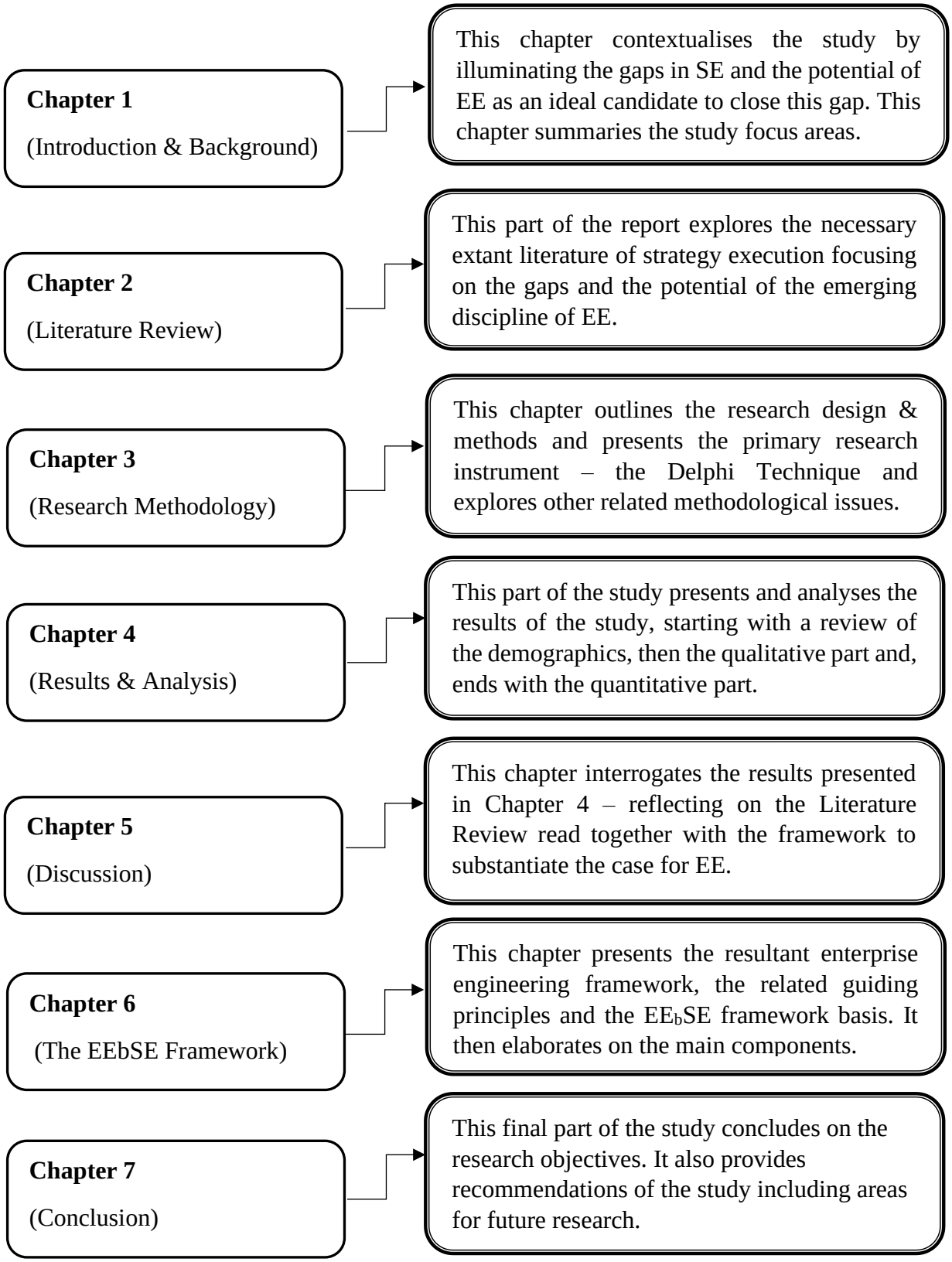


Figure 1.1: ***Structure of the Thesis***

The next chapter of this report (chapter 2) is a critical review of the literature on Strategy Execution, the theoretical foundations of Enterprise Engineering and the application thereof.

Chapter 2 – Literature Review

"In theory, there is no difference between theory and practice.
But in practice, there is."

(Benjamin Brewster, 1882)

This chapter reviews the literature regarding the relevancy of the study, the issues / challenges, and the theoretical basis of the current Strategy Execution frameworks. It also explores the nature and the applications of Enterprise Engineering (EE). As presented in Figure 2.1, below, it concludes by discussing the gaps in literature and the possibilities enabled by EE in translating strategy into action. This literature review is divided into three parts.

- Part A: Strategy Execution, Issues, Challenges and Misconceptions
- Part B: Enterprise Engineering, Its Nature, and Typical Construction Flaws
- Part C: The Gaps in Current SE Efforts / Frameworks and the Potential of EE

Figure 2.1 shows the structure indicating the flow of the literature review.

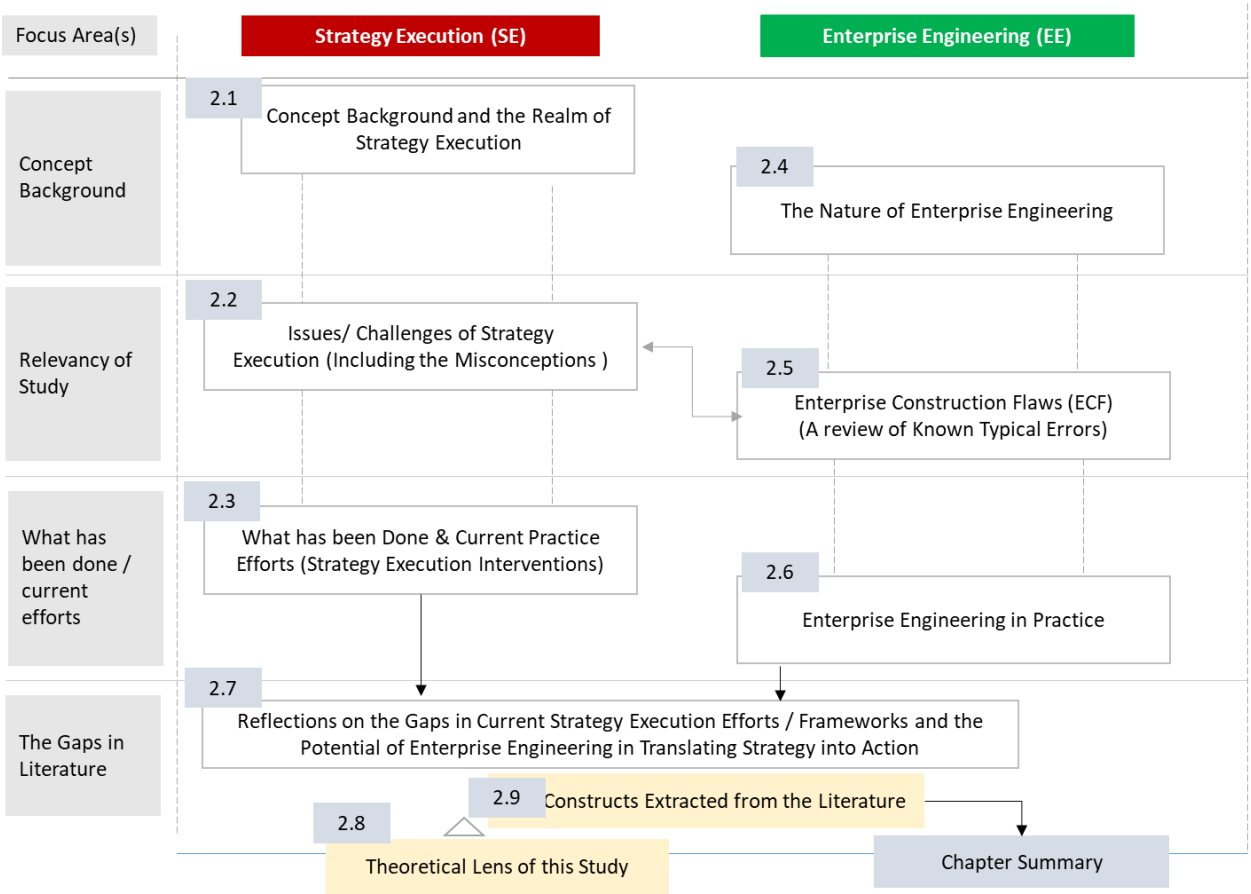


Figure 2.1: ***The Literature Review Roadmap***

Part A: Strategy Execution, Issues/ Challenges and Misconceptions

This part of the literature review introduces strategy and strategy execution and then reviews extant literature on the strategy execution challenges and misconceptions. The researcher begins that journey by exploring the evolution of strategic management which dates back many years ago. The levels and types of strategy are then reflected on, so is the relationship between business model and strategy; the strategy itself (a 'Good Strategy' versus a 'Bad Strategy'); strategy formulation; the strategy execution challenge and its inherent complexities. To frame this discussion the following working definition of strategy execution will apply. Strategy Execution – is the process of operationalising the strategy to ensure the desired future state of an enterprise is achieved and sustained. Elements extracted from various authors (MacLennan, 2011; Ehlers & Lazenby, 2012; Friesl, et al., 2021).

2.1 Concept Background and the Realm of Strategy Execution

2.1.1 The Evolution of Strategy Execution

Strategy was born out of the military thousands of years ago and the use of strategy enabled one warring party to defeat the other (De Wit & Ron, 2010). Strategy comes from the Greek word 'strategos' signifying the planning of a military campaign. This literally means "the art of a general". Referencing the Chinese philosopher and military strategist Sun Tzu's book – The Art of War, Aunk et al., (2014) in their AT Kearney report of the History of Strategy and Its Future Prospects, traces strategy (the birth of strategy) to 500BC that is almost 2500 years ago. The writers go on to give an outline of key milestones of the evolution of strategy. These milestones include the end of monopolies in 1904, the adoption of the principles of scientific management in the early 1900s and the advent of competitive strategy in the 1960s. Learned (1965) as cited by Cândido and Santos, 2015 p.2 concurs "…strategic management (as it relates to business management) was formally born in the 1960s". The 1990s saw the advent of management aspects of re-engineering the enterprise and use of metrics such as the balanced scorecard. The latter part of the first decade of the 21st century (2008/2009) so the introduction of design thinking and change by design and 2013 the end of the competitive advantage era (Aunk et al., 2014). It is important to note that throughout the past five decades, Strategic management focused essentially on formulation and planning elements leaving very little empirical research in strategic execution. Today, still - the problem of strategy execution failure

persists and is still an important ongoing concern for researchers and practitioners (Cândido & Santos, 2015).

To locate the timeliness of strategy execution in the realm of strategic management, where strategy execution is an element just like strategic management, the history of strategy implementation must be reflected on. It is also important to reiterate that "… progressively, those studying strategic management focused increasingly on strategic planning arguably at the expense of strategic execution. In the 1970s and 1980s, several management thinkers began taking a dedicated interest in strategy execution. However, they remain small right up to the present day. As a result, much of the existing literature on strategy execution must be viewed as early-stage and explorative" (MacLennan, 2011).

To summarise the historical aspects, strategy execution gained momentum in the late 1990s and 2000s with the introduction of business process re-engineering, the balanced scorecard and design thinking. However, it has been widely approached from a strategy formulation angle, focusing on alternative management styles; strategic change methods; the human elements (political, cultural, behavioural, learned and, even symbolic aspects of effective change management) and research emphasis on the factors affecting or challenges of strategy execution. As such, several strategy execution frameworks (ideas and solutions) evolved and so did complexity. The wide acceptance of the values of Systems Engineering (including Enterprise Systems Engineering) and the advent of Enterprise Engineering provides an opportunity to understand and unpack the design elements of the enterprise itself (the housing from which the strategy is launched). At the time of writing this thesis, there was no evidence found in literature on focused empirical research that links the enterprise design elements and the influence it has on strategy execution. This research effort hypothesises that by analysing the organisation's elementary level to understand the total pattern (the architecture) of the enterprises' construction, strategy execution can be better positioned and executed more successfully.

2.1.2 Locating Strategy Execution in the Various Strands of Strategic Management

Strategic management is defined variously in literature but at the core of these descriptions is setting direction for the organisation and the path thereof to produce the desired results. As such, this study adopts the simplified definition that Strategic Management "…is a set of decisions and actions that result in the formulation and implementation of plans designed to

achieve a company's objectives (goals)" (Pearce & Robinson, 2009, p.3 as cited by Heesen, 2016). It follows that the path to achieving the referred to desired goals is outlined in the strategic management process as shown in Figure 2.2 below. Note that this schematic is meant for illustration and may not be construed to be conclusive and hence limit the on-going debate among practitioners and academia on how the main building blocks of the strategic management realm relate. This study focuses on strategy execution.

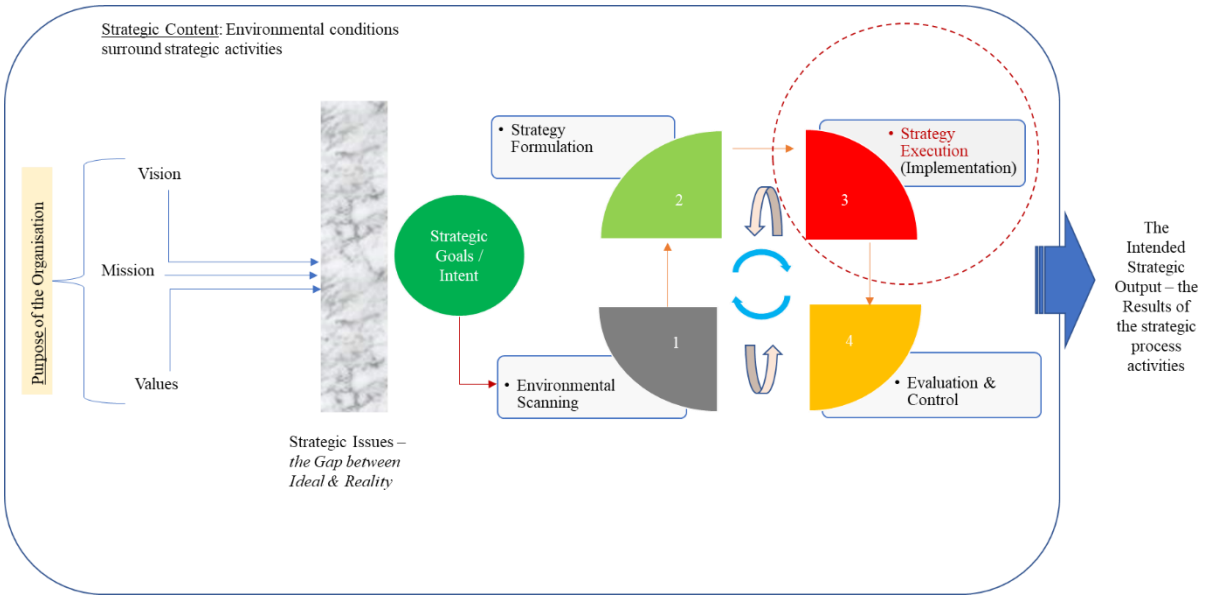


Figure 2.2: ***Basic Elements of the Strategic Management Process*** *(researchers own elaboration)*

2.1.3 Levels and Types of Strategy

Levels of Strategy – There are three (3) levels of strategy as classified by several authorities (De Wit & Ron, 2010; Ritson, 2011, Štefan & Branislav, 2016). These are Corporate Strategy, Business Strategy and Operational Strategy. It is important that these levels are defined and clearly outlined to locate the level at which this research effort is targeted. Figure 1.3 has been conceptualised from various sources (De Wit & Ron, 2010; Ritson, 2011; Grabowska, Krzywda, & Krzywda, 2015; Štefan & Branislav, 2016) to give an overview of the organisational levels of strategy in an enterprise:

- *Corporate Level Strategy:* this level answers the foundational question, on what business or businesses the organisation should be in.

- *Business Level Strategy* focuses on how each business unit is going to compete in its chosen area. It considers different aspects, which include product differentiation or strategy, quality of service, total costs strategy, customer retention strategy, etcetera.
- Lastly, *Functional Level Strategy* focuses on supporting corporate and business strategies. It is primarily concerned with the activities of the functional areas of the business (that is operations, finance, marketing, sales, human resources, information technology, project management, etcetera.). This is the level where the results of the higher-level strategies are harvested. Accordingly, it is prudent that efforts to address the challenges of strategy execution be addressed at this level first. This research focuses on this *operational level* as depicted in Figure 2.3 (below).

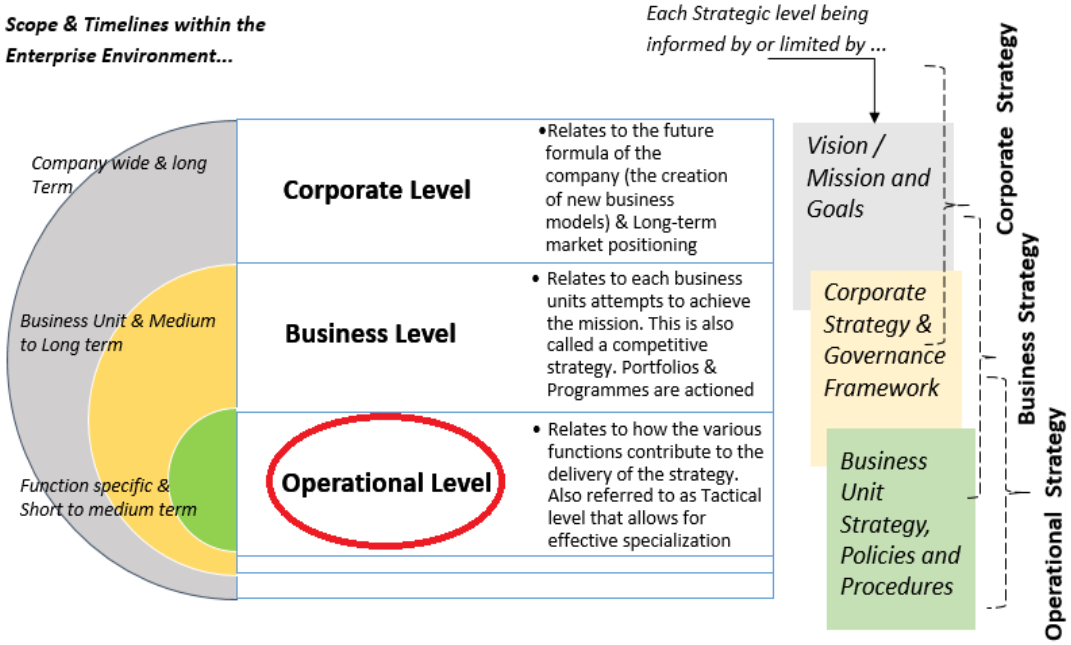


Figure 2.3: ***The Levels of Organisational Strategy*** *(source: authors own illustration)*

With the advent of e-hailing services and large digitally enabled goods supply networks in the 2nd decade of the 21st century some authorities now talk about the logical extension of the *functional – business – corporate* levels to acknowledge the level higher where firms cluster in collaborative alliances or value adding partnerships, the *network* level (De Wit & Ron, 2010). The organisation or the alliance partners must design strategies that are consistent with the demands of the bigger environment.

Types of Strategy: There are essentially four (4) types of strategy – these include *Planned Strategy; Imposed Strategy; Emergent Strategy; and Opportunistic Strategy* as depicted in figure 2.4 (next page), while the other types are variants or derivatives of these (Ritson, 2011).

- A *Planned Strategy* (also called Intended Strategy) is that which the organisation has deliberately chosen to pursue and will therefore have been worked out to a greater level of detail (ibid). This strategy is, therefore, that which aligns with the company vision and mission and positions the organisation for a competitive advantage.
- In scenarios where the planned strategy is no longer relevant for various reasons due to different market forces, usually an emergent strategy arises as a response to the needs of the external environment (ibid). However, like the planned strategy when the *emergent strategy* is implemented it also becomes the realised strategy as shown in Figure 2.4, below.
- *Opportunistic strategies* are those that come about in or from entrepreneurial ways.
- Lastly, *imposed strategy* is that which may be imposed on the organisation by key stakeholder(s) (for example new government regulatory requirements, or even pressures from recession, takeover or technological developments may force a cost - cutting strategy).

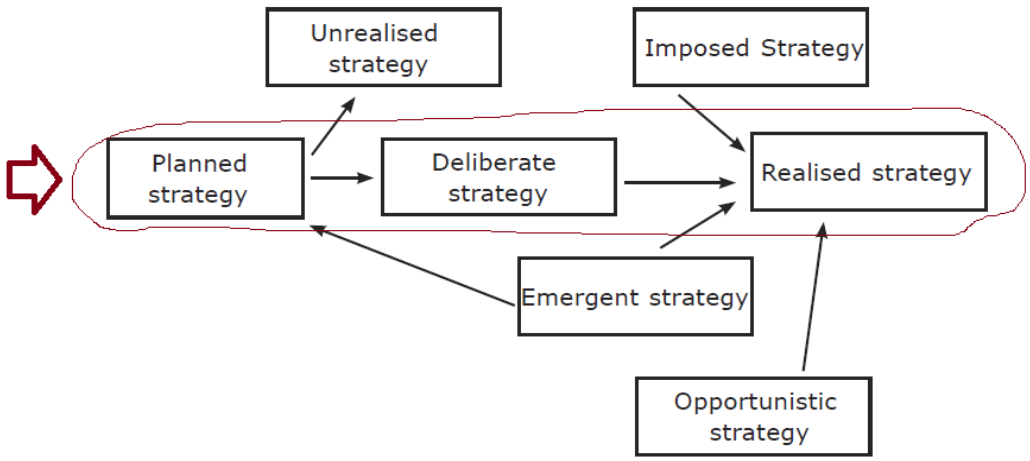


Figure 2.4: ***Types of Strategy*** *– schematic structural elements adopted from* (Ritson, 2011)

The focus of this research is on finding new ways (via the use of Enterprise Engineering theoretical foundations) to have better control and influence the outcome of the planned (intended) strategy at the operational level. It is not the intention of this research to digress by focusing on the details of the types of strategy nor the specifics of the levels of organisational strategy but to contextualise these en-route to building a sustainable strategy execution framework.

2.1.4 Relationship between Business Model & Strategy

"A business model and a business strategy are two essential preconditions and fundamentals of a company's existence" (Štefan & Branislav, 2016). The cause-and-effect relationship between business model and strategy is well researched (Grabowska, et al., 2015). Business model relates to logics that determine the creation and maintenance of value in the enterprise. In other words, it describes and explains how a company works and makes money. There are coherent voices in management literature (Grabowska, Krzywda, & Krzywda, 2015; Štefan & Branislav, 2016) that Business strategy and Business Model should be mutually supportive, reinforcing, and in reasonable conformity as should they be out of sync even worse results will be harvested. Table 2.1 below outlines the key attributes of each in an attempt to paint a snapshot summary - elements adopted from various authors (Casadesus-Masanell & Ricart, 2009; Grabowska, Krzywda, & Krzywda, 2015; Štefan & Branislav, 2016):

Table 2.1: The Relationship between Business Model and Strategy

Business Model	Strategy
• Answers the questions – How does the organisation make money and which markets to invest in? • Describes a system and how the pieces fit together (an abstract representation of some company strategy) • Explains who the customers are, and how to make money when providing value to them (the principal sources of income) • Portrays and displays the picture of the company resources. • An internal system that is composed of elements, links & dynamics.	• Answers the question - what does the business do and where should value be created / improved? • How does the organisation compete (provides guidance to confront or avoid competitors? • Leads the organisation through the business environment. • An external competitive approach using competencies that have been developed in the business model. • Provides orientation in complex and dynamic business conditions formulating options and possibilities to overcome the path between the present and the future.

Missing – competition as a dimension of performance	Missing – the process element that links activities

Based on this outline, it is evident that business strategy and business model are relatively independent but interrelated and complimentary. For example, the strategy provides the parameters of guidance for the different models to derive value. It can also be argued that a business model is the building block for conceptualisation and formation of strategy. Consequently, a business model is part of a business strategy. Figure 2.5 shows another angle of this symbiotic relationship.

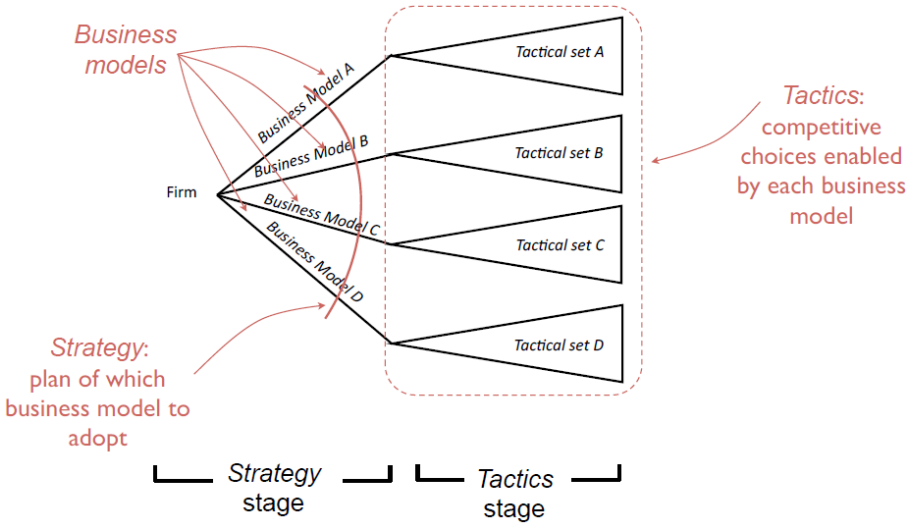


Figure 2.5: ***Relationship Between Strategy& Business Models*** *adopted from* (Casadesus-Masanell & Ricart, 2009)

Since a business model provides the essential detail, one needs to know and understand how a firm can successfully deliver value, the essence of Figure 2.5 above is therefore to show the impact of influencing the strategy execution – which will ultimately affect the business model hence the bottom line.

2.1.5 Strategy Defined and Attributes of a 'Good' versus a 'Bad' Strategy

It is prudent to mention that the quality of a strategy has a bearing or at least an influence on the successful execution of the strategy thereof. Therefore, it can be argued that it is easier to implement 'good strategy' than a 'bad strategy'. Put differently a 'bad strategy' can be implemented well but the results will not be desirable because it's a 'bad strategy'. It is

therefore sensible at this point to define strategy and subsequently the attributes of a 'good strategy' versus a 'bad strategy'.

'Strategy' has been described variously in literature, with some notable definitions outlined below.

- Cummings (1993) as cited by (De Wit & Ron, 2010) recalls Frontinus' definition of strategy in the first century as "… everything achieved by a commander, be it characterised by foresight, advantage, enterprise, or resolution".
- Strategy can be defined as an effort or deliberate action that an organisation implements to outperform its rivals (Ehlers & Lazenby, 2010).
- Strategy is a pattern of resource and market interactions an organisation has with its market in order to achieve its overall objectives (MacLennan, 2011).
- Strategy consists of the competitive moves and business approaches that managers employ to grow the business, attract and please customers, compete successfully, conduct operations, and achieve the targeted levels of organisational performance (Hough, et al., 2011)
- The core of strategy is always the same – discovering the critical factors (biggest challenges) in a situation and designing a way of coordinating and focusing actions to deal with those factors (Rumelt, 2011)
- Strategy is a way through a difficulty, an approach to overcoming an obstacle, or … a cohesive response to an important challenge (Rumelt, 2011)
- Strategy is the direction provided by the actions and decisions of strategists in pursuit of organisational goals (Venter, 2014).
- Strategy defines the path for organisational development (Zeps & Leonids, 2015).
- Strategy consists of choosing a group of activities that differentiates companies from the rivals (distinctive competencies), such that a unique and appreciated value proposition may be created (Hitt & Ireland, 1985; Porter, 1996 as cited by Osorio-Londono, et al., 2019)

Key words/ phrases or themes emerge from these definitions. A strategy is about,

- '… how an organisation moves forward'.
- '… to advance an organisations' interest'.
- '… marking the direction that the organisation is going'.

- A strategy has implementation elements embedded.
- Strategy is conceptual.
- A good strategy starts with diagnosis (a real challenge/ identification of obstacles).
- It is about focusing efforts.
- It is about specifying a path for competitive advantage.
- Coming up with a cohesive response to a specific challenge.
- Organisations' competitive trajectory mapping.

It follows a working definition for this study is:

- ***A strategy is a set of choices that gives a cohesive response to a specific challenge that will define how an organisation is going to 'win' (be / remain competitive)***

Simply put 'strategy' is a set of choices to achieve a particular objective, in most cases to be competitive or to win – wherein 'winning can mean various things depending on whether the organisation is a non-governmental organisation, in the military, a private or public sector entity. On the contrary for completeness and clarity, a 'plan' is a list of things to do, mostly organised in sequence. At the core of strategy is clarity on 'how to win' and clarity on which space to play. The table below summarises the difference between a "Good Strategy' and a "Bad Strategy – elements extracted from Rumelt (2011) and Trafford & Boggis (2017).

Table 2.2 Attributes of a 'Good Strategy' versus that of a 'Bad Strategy'

Good Strategy	Bad Strategy
✓ A good strategy is coherent mix of policy, actions, and resources to deal with a high-stakes challenge put simply to deal with an important end (it is not an industry analysis or a wish list). ✓ A good strategy should face the problem (it recognises the nature of the challenge and offers a way of surmounting the real-life problem). ✓ A good strategy should evolve from an assessment of the exogenous and endogenous forces. That is, it should	- A bad strategy is 'fluff' – it uses big words or 'flowery' language to create an illusion of high-level thinking. Put differently, a bad strategy hides the details or incoherences of the strategy in buzzwords or abstract (non-specific) language. - A bad strategy does not face the problem. In other words, it is a list of desirable outcomes that focuses on goals (commonly referred to as strategic

evolve from and support the exogenous forces that need to be strengthened and weakened. ✓ A good strategy must be understandable and logical (the average man in the street should be able to understand it the logic therein). In other words, it should be clear and have a differentiated point of view that supports forceful and coherent action. ✓ A good strategy is cognisant of the context of the organisation in which it is operating and how that context is changing (e.g., plan for new regulations). ✓ A good strategy should clearly define the trajectory of the organisation to the desired state. ✓ A good strategy should take into consideration the specific industry cycles (as in when new products come in). A good strategy 'Rides on the wave' – implying a good strategy takes advantage of the wave. ✓ A good strategy takes into consideration the limitations or weaknesses/ flaws of competitors. ✓ A good strategy changes the default trajectory of an organisation to the extent that it becomes coincident with that of the trajectory of strategic intent. ✓ It should be executable, and it is a pathway to a sustainably higher	objectives) and it assumes goals are all that is needed. - A bad strategy emanates from a list of things to be achieved, a budget, or simply a stretch goal. This can be linked to a lack of identification and analysis of the challenges an organisation is facing. - A bad strategy is difficult to understand at first sight or the strategy is unnecessarily complex largely because of 'fluff' masking an absence of substance. - A bad strategy is just a statement of desire rather than a plan for surmounting a challenge. These statements of desire have no direct link with the critical obstacles that constrain forward progress. - A bad strategy has no relationship with the industry cycles nor links with the emergent waves (for example it ignores the current trends in technologies – those that enable or reinforce the organisations capabilities). - A bad strategy does not take into consideration the strengths and weaknesses / flaws of competitors or the organisation itself. - A bad strategy is difficult to execute, if it does it is difficult to sustain the execution as it is vulnerable to the environmental forces (for example the

performance. In other words, the strategy is realistic and sustainable.	industry cycles and the exogenous forces it ignores).

According to Rumelt (2011), a *'Good Strategy'* is a coherent action backed by an argument, an effective blend of thought and action with a basic underlying structure which the author calls the kernel. Rumelt argues that this 'kernel' of a good strategy contains three key elements:

a. A diagnosis (what is going on) – this is an analysis and definition of the challenge or obstacle the organisation is facing or likely to face to comprehend the situation.
b. A guiding policy – is an overall approach to deal with the present or future critical challenge/s identified to build on or create some type of leverage or advantage.
c. A set of coherent actions – these are steps that are coordinated with various stakeholders to carry out the guiding policy.

On the contrary Rumelt, (2011) also attributes the prevalence of bad strategy to three sources.

i. The unwillingness or inability to choose from competing values or parties and the avoidance of hard work (the pain) of crafting a good strategy. Choice in this case means setting aside some goals in favour of others.
ii. Template-style strategy, wherein entities focus on filling the blanks with the vision, mission, values, and then strategies in that order. The argument here is that to get to the end an organisation should simply fill in the Vision, then the Mission and Values leading to strategy.
iii. The belief is that all that is needed to succeed is a positive mental attitude and forgoing the second part of the equation, putting in the hours.

Based on the above it can be argued that the purpose of strategy is to figure out what to do to address specific key challenges, if necessary, change or sustain the organisation's trajectory taking into consideration the environmental forces (the context) with the end being an improved or desired future. The strategy should be operationalised by "pulling from the future (the desired state) rather than "pushing from the present" Trafford & Boggis (2017) and this requires hard work to get the desired effective and implementable strategies. The same authorities argue that "… the purpose of strategy is to change the trajectory of the organisation from its current trajectory of strategic reality [or the default path (if nothing is done)] to its trajectory of strategic intent" Trafford & Boggis (2017). Put differently the intention should be

to change the default path and bring it in line with the desired path – the trajectory of strategic intent.

2.1.6 Strategy Formulation Component of Strategic Management

In Figure 2.3 above, an attempt was made to explain the levels at which specific strategies are developed which, put differently, results in specific strategies – for example, corporate strategy or business unit strategy. The corporate strategy level is where joint strategy from the business units is framed. On the other hand, most programmes and projects seen in organisations emanate from the business strategy and the functional strategy levels. Regardless of level, it should be highlighted that the formulation of a strategy requires (Ehlers & Lazenby, 2010; Heesen, 2016; Trafford & Boggis, 2017):

i. understanding and confronting the organisation's default future and consequently the trajectory of strategic opportunity (that is what must be done to improve the status quo - the current trajectory of the business),
ii. a clear understanding of the current and potential customer or where the organisation is going to 'play' with an intention to build and deploy a capability which is unique and difficult to replicate.
iii. a clear understanding of the competitive environment (external – these could be suppliers, market dynamics, competitors, regulators etc.).
iv. an honest reflection on the exogenous forces (the global forces that shape the trajectory of strategic opportunity – these include population dynamics, globalisation, energy trends, climate change, digital technology trends etc.).
v. an honest reflection and understanding of an organisation's capabilities (that is leveraging on all available resources for competitive advantage).
vi. monitoring of the environment to remain flexible hence appreciation of disruptive and innovative ideas that may necessitate a change in direction.
vii. those crafting the strategy to acknowledge that the major limitation to any strategy formulation effort is the lack of accurate knowledge of what can happen in the future. It follows the use of business intelligence - forecasts and prediction models may be useful to de-risk the strategic intent.

There is vast literature on strategy formulation – however, authorities agree that crafting an effective strategy is hard work and further to that, it is also less understood (Ehlers & Lazenby,

2010; Heesen, 2016; Trafford & Boggis, 2017). Figure 2.6 presents a simplistic illustration of the strategy formulation process as a way of clarifying how it relates to execution as summarised from extant literature in this area. It may also not be construed to be conclusive and hence limit the on-going debate among practitioners and academia on how strategy formulation relates to strategy execution.

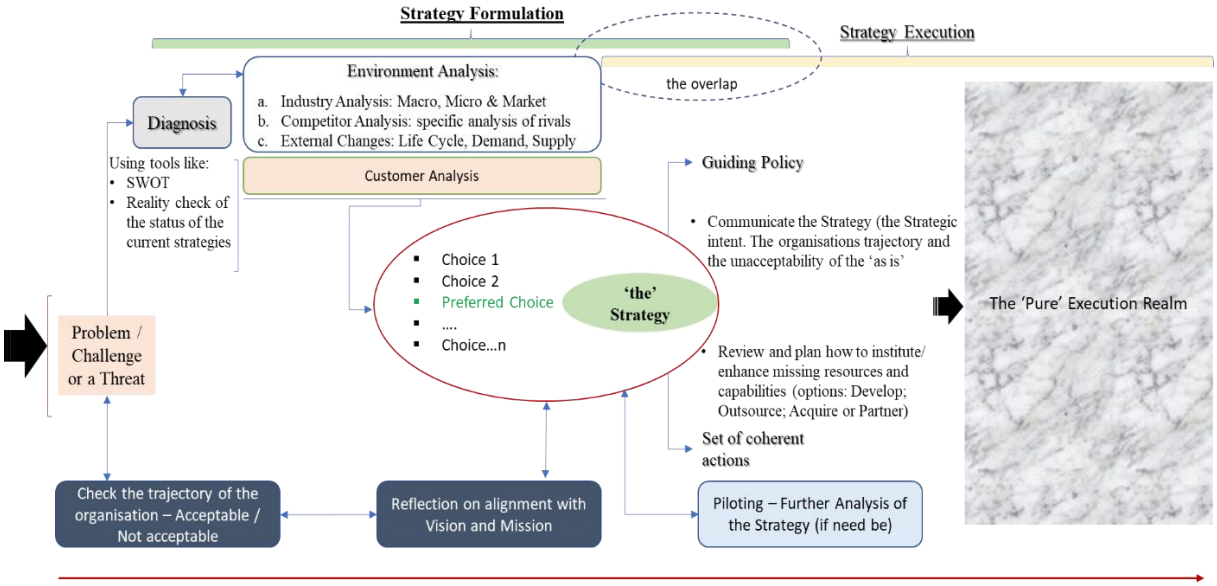


Figure 2.6: ***Overview of Strategy Formulation and its Link with Execution*** *(the researchers' illustration of the extant literature reviewed)*

Based on this framework it can be argued that strategy execution capabilities start in the strategy formulation stage and the execution itself also depends on the quality of the strategy – the 'good' and 'bad' strategy explained above. This study is centred on strategy execution as such, the researcher will not labour more on the intricacies of strategy formulation. However, it was important to reflect on the formulation stage to expose the roots of execution, the challenges, and the complexities of strategy execution.

There is a school of thought that argues that strategy execution is an intricate part of strategy formulation and should be reflected on largely within the ambits of 'formulation'. This researcher disagrees and blames this thinking on the limited research in strategy execution/ implementation. Several other authorities disagree as well … Strategy Implementation (execution) is a distinct organisational phenomenon that comes with its own set of challenges, and this is worthy of exploration and theorising (Friesel et al., 2021).

2.1.7 Strategy Execution / Implementation Component of Strategic Management

The challenges of strategy execution have been highlighted in various platforms as mentioned in Chapter 1 of this thesis and as will be elaborated in future sections of this literature review. Before going into the complexities of *strategy execution* the researcher will reflect on how strategy execution has been defined / described and then synthesise a working definition for this study. It should be noted that there is no widely accepted definition of strategy execution which is testimony to the limited maturity of this area of strategic management.

Strategy Execution Defined

Strategy execution has been defined variously without any distinct agreed working definition as compared to other mature or well-researched areas in management. Some notable definitions are outlined below. Strategy execution is …

- "… is the process that turns the selected strategy into action to ensure that the stated goals (aligned with the vision and mission) are accomplished" (Ehlers & Lazenby, 2010)
- "… is the action that moves the organisation along its choice of route towards its goals – the fulfilment of its mission, the achievement of its vision (Stonich as cited by 1982 as cited by MacLennan, 2011)
- "… is the realisation of intentions (Eccles as cited by 1994 as cited by MacLennan, 2011)
- "… is a dynamic, iterative and complex process that is comprised of activities by managers and employees to turn strategic plans into reality in order to achieve strategic objectives (Yang et al. 2010 p.165)
- "… the process of indirectly manipulating the pattern of interactions an organisation has with its environment in order to achieve its overall objective" (MacLennan, 2011).
- "Putting strategy into action" (Hill and Jones, 2013 p4)
- "Converting strategy into actions and good results" (Thompson et al., 2013 p44)
- "The realisation of a firm's mission statement" (Covin et al., 1994, Rey & Bastons, 2018 as cited by Friesel, Stensaker & Colmans, 2020)

- "Translation of a deliberate strategic intent into organisational practice" (Friesel, Stensaker & Colmans, 2020)

In this study, strategy execution will be defined as,

- *… the process of operationalising the strategy to ensure the desired future state of an enterprise is achieved and sustained.*

In other words, strategy execution translates the strategic intent into action for an organisation to win (succeed) – however or whatever the definition of the 'win' (or success) is.

2.2 Issues and Challenges of Strategy Execution

It is significant that strategy execution is repeatedly considered the most difficult part of the strategic management process but contrary it is well recorded in literature that most organisations' leadership relegates strategy execution / implementation to the lower levels of the organisation. As stated before, even in academia or the consulting industry much of the work has been dedicated to the strategy formulation stage. Most books in strategic management are largely focused on the formulation and measurement of strategic efforts. This almost suggests that the complexity of strategy execution is manufactured or at least unintentionally created. There is also confusion in literature on whether change management addresses the challenge of strategy execution. However, not all organisational changes are strategic (MacLennan, 2011) and most of the literature in this area does not address issues specific to strategy or strategy execution complexities. Several authorities are quick to introduce frameworks without zooming into the crux of the strategy execution construct and its relationship with an enterprise as a complex system.

2.2.1 Strategy Execution Inherent Complexities

Organisations are complex systems (CxS) specifically, *complex socio-technical systems* (Dietz & Hoogervorst, 2013; Janssen, 2016; Heesen, 2016; Alter, 2017). The social-technical part relates to the interaction of technical systems ('hard' engineering systems for example machines and other hardware) and the social systems (people, labour unions, etcetera. This seemingly disorderly system of systems (SoS) gives rise to higher order more orderly systems (at least to the external observer) like organisations, business units etcetera – the complex

socio-technical systems (CxSTs). An enterprise is therefore "… considered an integration of multiple SoS's" (Kossiakoff, et al., 2011).

In a simplistic view, the 'complex' part in a 'complex socio-technical system' largely relates to the difficult in dealing with challenges that arise in this CxS or a high degree of uncertainty of any initiative launched therein. Put differently, organisations need to understand how their organisations operate and where to tweak for them to intentionally influence any initiative in these CxS. To this end a working definition of complex systems that will be useful in this study as synthesised from literature (Ladyman, et al., 2013 p25; (Kossiakoff, et al., 2011)

> "A complex system is a group or an ensemble of many elements which are interacting in a seemingly disordered way, resulting in a robust organisation and memory"

Below are some core attributes widely associated with complex systems as extracted from extant literature. Thes includes, CxS generally have (1) multiple interactions; are (2) disorderly - since the order emerges from the disorder rather than being built into them; (3) they learn (have a memory) as such are unpredictable; self-organise (able to adapt to changes); have several systems of systems; (4) have a property of emergence; (5) they are generally open systems (interact and are affected by the environment) and; purposeful - they form coherent wholes that have a purpose (Hitchins, 2007; Kossiakoff et al., 2011; Heesen, 2016; Friesel, Stensaker & Colmans, 2020; Weiser, 2020).

As if the complexity of the housing system – the enterprise is not enough, strategy execution has also been described as complex. The complexity of Strategy Execution as a system has been attributed to four (4) key issues listed below (Bossidy, et al., 2011; MacLennan, 2011; Ehlers & Lazenby, 2012; Venter, 2014; Heesen, 2016). (a) Execution is inherently complex as it has several unknowns and dependencies. A typical unknown it is difficult to know for sure if the intended or emergent strategy (the set of choices) will give the desired competitive advantage. It also depends on the quality of the strategy; the resources and capabilities in place; the adaptiveness of the organisation to the environmental forces, etcetera. (b) Limited focus on understanding this part of the strategic management process – on the contrary execution is delegated to the lower levels of the organisation to allow the leadership to 'focus on more high-level matters or the intellectual part (strategy formulation)'. This therefore unintentionally induces complexity by limiting the needed leadership focus on strategy execution. At the extreme SE has been relegated to mean the inspirational force of managers and employees. (c) The realm of execution interacts with many systems (social or technical) and stakeholders

(internal or external) in a non-linear way which are themselves dynamic and therefore hard to observe and control and (d) Strategic execution is highly dependent on the readiness of the organisation to adopt or launch the strategy. The complexity lies in understanding the design of the enterprise's core elements at the lowest level and how they interact with higher level elements including external systems.

What is key in dealing with complexity is regulation, feedback, and control. Several models have been suggested in the literature to deal with complexity however for this study the Viable Systems Model (VSM) was repeatedly referenced as an enabler to lessen the referred to complexity. VSM is anchored on the principles of cybernetics which allows the system of interest to (Heesen, 2016).

i. at 1st order self-organise and,
ii. at a higher order self-steer

The key tenets of the VSM are (Espejo & Gill, 1997; Jackson, 1998; Heesen, 2016).

- ✓ To be considered sustainable an organisation must be capable of adapting to the constantly changing environment through learning from experiences.
- ✓ Organisations are complete systems that should be in balance with their environments (the system) to remain viable in a rapidly changing environment.
- ✓ Organisational structures should be flat and self-organising to allow the entity to respond quickly and cope with increasing complexity surrounding these entities.
- ✓ The VSM values individual contributions as such focuses on information flow and knowledge, allowing all levels in the organisation to view enterprises from the perspective of the leadership which enables effective cooperation.
- ✓ VSM advocates keeping an eye on the environment to allow for timely responses.
- ✓ VSM also advocates for a shared understanding of the organisation as an integrated whole.

As described by Espejo & Gill (1997) and clarified by Hitchins (2007 and Sadi et al (2016) a viable system needs to have five (5) key systems (S1 to S5) for it to operate effectively in its environment.

i. Implementation System (S1): often referred to as the muscles of the organisation, this system produces an actual outcome – e.g., a manufacturing cell that produces goods

and services. It interacts with the environment and shares information with other systems.

ii. Coordinating System (S2): this system keeps the 'different activities' in an organisation from interfering with each other via a set of rules and guidelines. Coordination is required to ensure information flow and communication.

iii. Monitoring and Control System (S3 and S3*): these systems allow the various systems at various levels to be managed together (cohesion) and synergies to be harnessed. This system is about control and optimisation. At the extreme side of efficiency, there is a need to design a system for self-control that allows for self-steering. At the core of s3 is the audit function.

iv. Enterprise 'Intelligence' System (S4) that which focuses on the end game – the future. This system is designed to interrogate the best-case future state and map the corresponding trajectory to the desired destination while giving constant feedback on market conditions and the environment at large – so that "… opportunities may be seized, and pitfalls avoided (Hitchins, 2007)".

v. Organisational Identity & Policy Framework System (S5): This system is central to setting the context; establishing corporate identity and the direction in which the organisation is going; and formulating the policies required to guide or provide any clarification required and ensure organisational effectiveness.

The figure below summarises Beers Viable Systems Model.

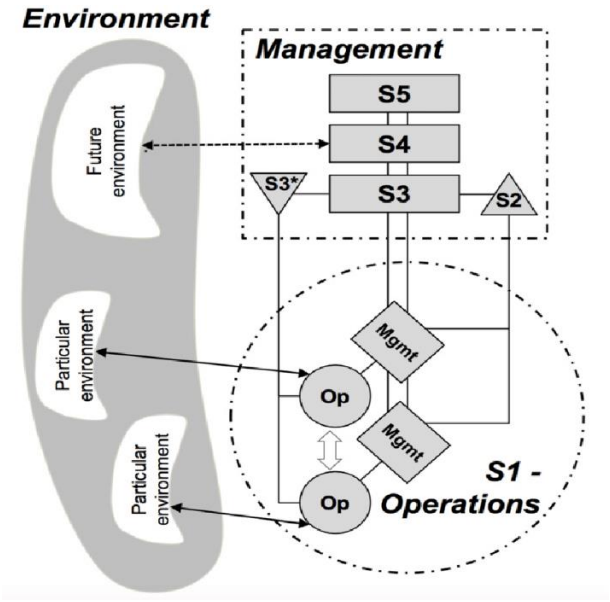


Figure 2.7: ***Beers' Viable Systems Models (****adopted from Sadi et al., 2016)*

Based on this overview it can be asserted that the VSM focuses on survival and as such its embedded benefits lie in the long-term orientation of the enterprise. Important in this study is that VSM can be used as a "… diagnostic tool to make specific recommendations for improving the performance of organisations … and for managers seeking to design and operate, goal seeking, adaptive systems" (Jackson, 1998 p562).

2.2.2 Issues and Challenges of Strategy Execution – Unpacked and Summarised

The continued challenge of Strategy Execution is both complex and to an extent surprising. Some authorities have argued that it is complex because the 'strategy execution' itself has not been given due attention to understand it as compared to strategy formulation and further to that the context or the housing through which the strategy is operationalised – the enterprise has been treated as a black box (Heesen, 2016; Janssen, 2016). In trying to explain a point on why people seem not to understand the importance of strategy execution, Bossidy et al. (2011:30) argue that "… people in business are not oblivious to the issue as they are aware of its absence … but rarely apprehend the underlying lesson, because execution has not been recognised or taught of as a discipline". This can be taken to imply that business leaders and practitioners do not know what they are looking for or in other words are not aware of the real drivers of strategy execution. Hence most leaders delegate execution to the lower levels (Bossidy, et al., 2011; MacLennan, 2011; Ehlers & Lazenby, 2012; Trafford & Boggis, 2017).

The view below summarises the *Challenges of Strategy Execution* in six (6) buckets as extracted from various authorities : (a) the **Quality of the Strategy** itself (since execution framing starts in the strategy formulating stage); (b) **Processes of translating strategy into action;** (c) **Organisational Capabilities; (**d) **Resource Allocation;** (e) **Leadership;** (f) **Cultural Context** (readiness of an organisation to adopt strategy from a culture perspective) and; (g) **Enterprise Design** (readiness of an organisation to adopt strategy from an enterprise design perspective).

Quality of the Strategy

- Lack of logic or clarity of the strategy – in other words strategy not being understood by those responsible for implementing that strategic intent (Rumelt, 2011; MacLennan, 2011; Trafford & Boggis, 2017).
- Lack of a coherent mix of policy, actions, and resources to deal with a high-stakes challenge (Rumelt, 2011).
- Poor quality of strategic objectives resulting in a 'bad' strategy that is not linked to a specific challenge (a mere list of things to do which is neither realistic nor sustainable) (Rumelt, 2011).
- A strategy that was generated without reflecting on the trajectory of the organisation and operationalised by "pulling from the future (the desired state). This included checking if that trajectory is acceptable or unacceptable (Trafford & Boggis, 2017)
- Lack of agility or flexibility of the strategy to respond to emergent strategies and environmental dynamics (Trafford & Boggis, 2017; Heesen, 2016)
- Failure to plan for implementation in the strategy formulation stage (Ehlers & Lazenby, 2012; Heesen, 2016).

Processes of translating strategy into action

- Lack of any or a robust strategy execution framework. In other words, absence of sound roadmap and processes for linking strategy and operations (Bossidy, et al., 2011; MacLennan, 2011).
- Lack of processes of managing dynamics internal and external to the organisations – the endogenous and exogenous forces (MacLennan, 2011; Trafford & Boggis, 2017)
- Too much emphasis on 'alignment' of which the referred to organisational alignment is not clearly defined and is only one of many requirements for successful strategy (MacLennan, 2011).
- Focusing on programmes and projects that are not aligned with organisational objectives / strategic objectives (MacLennan, 2011)
- Frameworks and Digital tools for measuring strategy execution performance or effectiveness not available and if there, not adequately instituted (Heesen, 2016).

Organisational Capabilities

- Failure of organisations to identify and assess the capabilities that the organisation has built over time versus the needs of the intended strategy. Put differently that is failure to identify capabilities and to assess their influence: (a) that is taking note of the existing capabilities that are anchoring the organisation to its current trajectory and (b) the new capabilities that are needed to pull the organisation onto its trajectory (Trafford & Boggis, 2017).

- Lack of appreciation that the dominant organisational capabilities are present to maintain the current trajectory of that entity and as such when changing the organisations strategy hence trajectory – new and different capabilities will be required and the influence of others may need to be moderated (Trafford & Boggis, 2017)
- Since organisational capabilities create organisational habits (that which organisations impulsively do) – some organisations then ordinarily make flawed assumptions that since an organisation's capabilities have been a source of success in the past, the same follows for the future (Trafford & Boggis, 2017).
- Failure to manage capabilities as a portfolio and to then focus on the approaches to strengthen or establish the needed capabilities to ensure successful strategy execution (Trafford & Boggis, 2017). These include in-house development; partnering with others with the required capability; acquiring those with the capabilities and growing the capabilities internally. It should be noted that the choice of the option is dependent on the urgency (how soon the capability is required) and the difficulty or complexity of that capability.

Resource Allocation

- Resource allocation not proportional to the contribution of the strategic objective that the strategic initiative is linked to (MacLennan, 2011).
- Failure to accurately link the resource plan or budgets to the chosen strategy (in other words a change in strategy requires a change in resource allocation (Ehlers & Lazenby, 2012).
- Allocating resources based on political or personal bias and not according to the agreed strategic priorities (Ehlers & Lazenby, 2012).
- Allocating resources based on short-term financial focus or an over-protection of resources (de Wit & Meyer, 2010).
- due to reluctance to take risks (Ehlers & Lazenby, 2010).

Leadership

- Relegating strategy execution to the lower levels of the organisation, in other words, misunderstanding of who is responsible for implementation (Rumelt, 2011; Bossidy, et al., 2011; Heesen, 2016; Trafford & Boggis, 2017)
- Misunderstanding or underestimating the importance of strategy – wherein in some organisation's strategies are '… required to justify budgets, otherwise they are of little use to executives. (MacLennan, 2011)
- Lack of competent charismatic leadership – with the right mix or combination of technical and interpersonal skills who are fair and are capable of expanding peoples' capabilities through collective leadership to successfully drive strategy execution (Bossidy, et al., 2011)

Cultural Context (Readiness of an organisation to adopt strategy from a cultural perspective)

- Lack of appreciation of the link or influence of leadership on culture. By extension culture influences how an organisation 'operates' (how things are done or the ability to deliver reliably and consistently. (Hough, et al., 2011; Trafford & Boggis, 2017)
- Failure to review or to do a culture assessment before the launch of key strategic initiatives (Hough, et al., 2011)
- The misconception that culture is untouchable or invisible and not measurable, yet there is considerable literature that has shown evidence that culture can be subjected to empirical scrutiny via measurement of the employee's behaviour (Bossidy, et al., 2011; Hough, et al., 2011; Venter, 2014)
- Failure to appreciate that a healthy organisational culture with high satisfaction levels shapes the behaviour in the workplace and creates a culture of productivity. On the contrary lack of shared beliefs, behaviours, values, and assumptions has a significant impact on employee satisfaction by extension productivity or results (Hough, et al., 2011; Venter, 2014)
- Failure to intentionally create an organisational culture that supports strategy execution (Bossidy, et al., 2011) – for example, a culture of indecisiveness or a culture of 'not walking the talk' is bad for strategy execution. This may include matching the organisational culture with the requirements of strategy execution or the intended organisational trajectory.

Enterprise Design (Readiness of an organisation to adopt strategy from an enterprise design perspective)

- Underestimating the complexity of Strategy Execution and the enterprise itself (the system of interest from which the strategy is launched (Janssen, 2016; Friesl, et al., 2021).
- The current implementation approaches focus more on surface issues and not the underlying issues of strategy execution (the crux) or the theoretical foundations that drive Strategy Execution (Heesen, 2016; Janssen, 2016)
- The current implementation approaches do not focus on understanding and structured analysis of the enterprise at the elementary level before making changes or prescribing solutions (Dietz & Hoogervorst, 2015; Janssen, 2016). The referred structured analysis includes but is not limited to mapping crucial agreements and activities that make up transactions and investigating design flaws at the ontological layer that can impede Strategy Execution (Janssen, 2016)
- The current implementation approaches do not have or demonstrate the capability to bring the requisite visibility and clarity on the construction, construction elements and construction flaws (if any) of the enterprise and therefore have the basis to judge

the suitability and probability of success of the intended strategy – elements extracted from.

Serve for Enterprise Design – which is the essence of this study, consistent with the purpose of this study, the researcher will not dwell on the rest (five (5) of the six (6) central challenges explained above) that some researchers have put effort to understand. This study examines the possibilities of utilising enterprise engineering to address the challenges of strategy execution. As such, the researcher will reflect on the Nature of Enterprise Engineering and its possible significance to close the Strategy Execution Challenge. But before that, it is important to discuss the environment for strategy execution.

2.2.3 The Environment for Strategy Execution

An environment for successful strategy execution is complex as it has many variables that must be in place, and which also interact. These variables are also dependent on each other in one way or the other. Extant literature in Strategy Execution cited several attributes that must be in place to aid successful strategy execution assuming the strategy is ' the right one'; and 'a good strategy'. The commonly cited distinct categories of a strategy execution-ready organisation include: an environment with *(a)* knowledgeable and competent *Leadership; (b)* the right *People* (skilled, competent, and with the right attitude) *(c)* the requisite *Governance* systems and processes *(d)* the requisite industry and business model specific *Organisational Capabilities* and *(e) Organisational Design* (Hartman, 2004; Bossidy, et al., 2011; Ehlers & Lazenby, 2010; Ehlers & Lazenby, 2012; Heesen, 2016; Obeidat & Al-Hadid, 2017; Musawir, et al., 2017; Trafford & Boggis, 2017; Friesl, et al., 2021)

Leadership to an extent creates the culture for execution and frames the specific actions that drive the strategic initiatives (Hartman, 2004). *Execution is the major job of a business leader* (Bossidy, et al., 2011). These authors argue that the business leader is a central person positioned to comprehensively understand the business, its people, and its environment which are fundamental requirements for successful strategy execution. There is agreement in literature that execution has to be culture driven from the top and this cannot be delegated (Bossidy, et al., 2011; MacLennan, 2011; Ehlers & Lazenby, 2012; Heesen, 2016; Trafford & Boggis, 2017). Put differently the leader can set the tone of the conversations and construct an architecture of execution in an organisation and by extension the leader is pivotal in cultivating

the culture of getting things done. Below this executive leadership (also referred to as the C-suite executives) is the operational leadership, referred to as managers. Guided by the traits of adaptive leadership, Tawse & Tabesh, (2020) asserts that it is important to understand the relationship between managerial actions of strategy execution and the achievement of strategic goals. As such, the managers must have the ability to adjust their decision-making as situations unfold depending on the status of the implementation and feedback without derailing from the desired organisational trajectory. There is consensus in management literature that effective and coordinated use of organisational resources leading to successful enterprises comes from the leadership with legitimacy, integrity, and credibility.

People: consistent with the requirement to have a strong social capital to allow managers to effectively communicate strategy and connect with people (Tawse & Tabesh, 2020), the leadership should ensure the organisation has capable human resources.

Governance spells out the rules of the 'game' for example how decisions will be made and the discipline that leaders impose on their teams (Hartman, 2004). The governance architecture is the anchoring footing of accountability hence performance management, ethical behaviour, and discipline.

Organisational Capabilities are "a set of collective skills, abilities and expertise of an organisation … what we are good at" (Ulrich & Smallwood, 2004 as cited by Trafford & Boggis, 2017 p76). These are generally referred to as organisational capabilities because they reside within an organisation and not in individuals, even though individuals shape and contribute to them (Trafford & Boggis, 2017). The capabilities are key as they indicate the ability to deliver a specified outcome reliably and constantly. These capabilities contribute to the long-term survival and potentially to the competitive advantage of the organisation (Whittington et al., 2020) These capabilities can be generic and industry-specific examples include Data analytics; IT service management; Cashflow management; Talent acquisition; Vendor management; Project management; Process Management; Engineering design; Product development; Contract management etc.

(Trafford & Boggis, 2017) argue organisational capabilities exist (at least the dominant one) to maintain the organisation's current trajectory. The same authors go on to caution that the reason why organisations struggle with new initiatives is that they usually ignore or underestimate the influence of their capabilities. Lienward & Mainardi (2010) as cited by Trafford and Boggis, (2017 p.77) argue that for any organisation to be successful it needs between three (3) to six

(6) distinctive capabilities that reinforce one another forming what they describe as an inter-linked capability system.

2.2.4 Strategy Drives Structure

The debate on whether strategy drive's structure or vice versa is well documented in strategic management literature. The phrase 'structure follows strategy' was coined by sociologist Tom Bums and research partner psychologist - George Macpherson Stalker (Bawtree & Young, 2022). The two authors argued that a key requirement for successful implementation is putting in place an organisational structure supporting a strategic intent (or a strategy). In his 1962 ground-breaking work – Strategy and Structure, Chandler showed that a long-term coordinated strategy was necessary to give a company structure, direction, and focus (Kavale, 2012). Proponents of Chandler's case analysis conclusion argue that there is a connection between strategy and structure and that linkage is anchored on the structure supporting strategy. "The primary structure of an organisation is one of the basic means through which strategists position the firm to execute the strategy in a manner that balances internal efficiency and effectiveness", (Grant, 1998 as cited by Kavale, 2012). Several other authorities agree, the purpose of structure is to organise your resources in such a way that you are able to deliver your strategy, (Sutherland, 2016); the 'strategy drives structure' approach allows the organisation to choose an appropriate strategic approach in light of the challenges facing the organisation (Kim & Mauborgne, 2009). (Strikwerda, 2012) puts it differently while emphasising the same argument – 'in the quest for creating efficient organisations due to emergence of new business models (disruptive technologies included) and a new type of customer value propositions, a more precise design of especially process is needed in which structure configuration plays a secondary role – from structure follows strategy to process follows proposition. Thus, further pushing structure away from the basis of organisation design. In essence structure supports strategy. Most organisations have structures that lag their strategy and have the net effect of slowing down progress against their plans, (Sutherland, 2016). Without limiting the importance of structure, it can be argued that these authorities view it as a necessary administrative vehicle to drive strategy execution. In a world of limited resources, substantial competition in all sectors, and generally low margins, it is key that organisations continuously monitor the pulse of their customers, adjust their value propositions, and therefore adapt their strategies to the changing world. Figure 2.8 below shows the author's attempt to

map the organisation design basis era in strategy. This study argues that an organisational structure, process analysis / review and clarity in value proposition are all important elements but not sufficient to proactively programme and influence successful strategy execution. There is far more that needs to be understood specific to the underlying drivers in an enterprise.

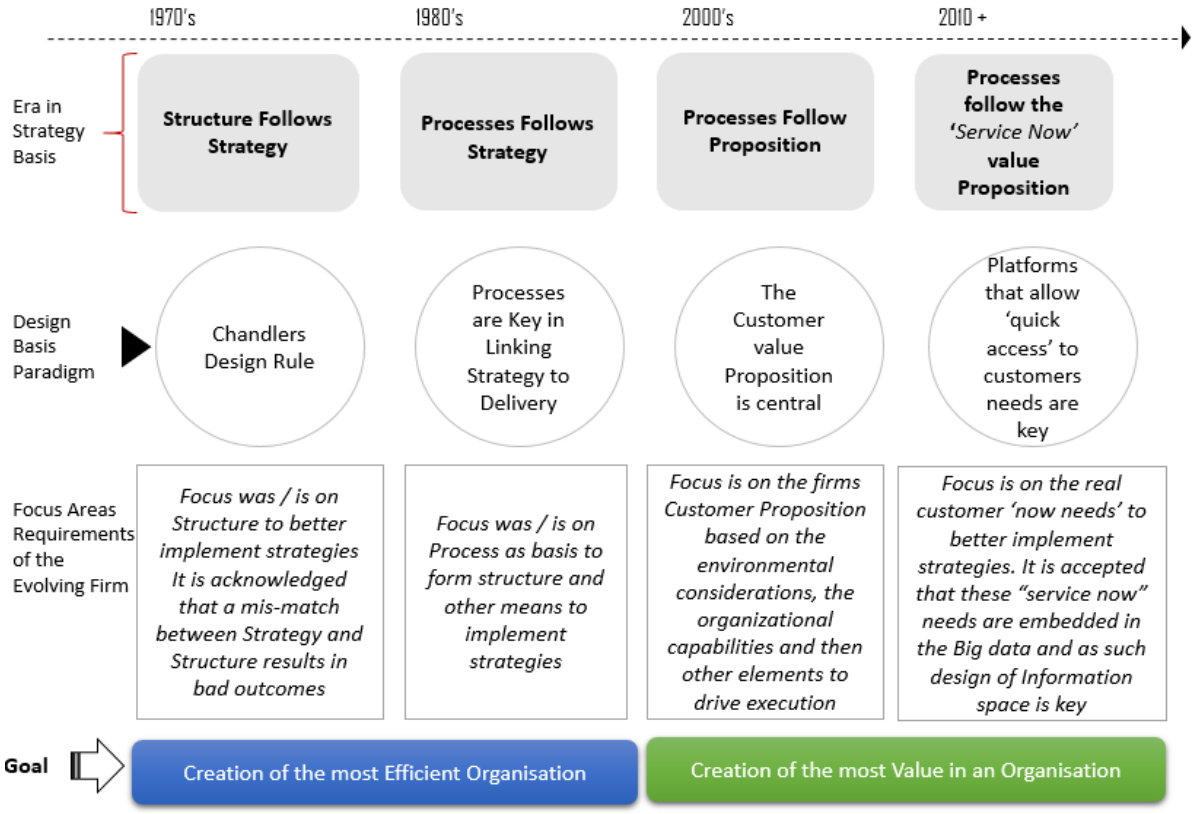


Figure 2.8: ***Organisation Design Basis Era*** *(authors own elaboration, elements adopted from* Kim & Mauborgne, 2009; Kavale, 2012; Strikwerda, 2012; Sutherland, 2016)

At this point it is appropriate to acknowledge the works of Weiser, Jarzabkowksi and Tomi in their paper titled 'Completing the adaptive turn: an integrative view of strategy implementation. This paper captures a review of 40 years of strategy implementation research where the authors acknowledge the movement of research focus from the structural control (e.g., design plans, structures, systems, incentives, and controls) view to a more adaptive conception of strategy execution (Weiser, et al., 2020). The later – adaptive entails how an organisation makes sense and enacts plans and related adaptive dynamics of strategy execution (ibid). This further widened the theoretical lens used in approaching strategy execution. This work is captured and summarised in two views, Figure 2.9, and figure 2.10. Figure 2.9 shows the development of strategy execution research according to the two views (the traditional and the adaptive) of strategy execution based on a sample of N = 185.

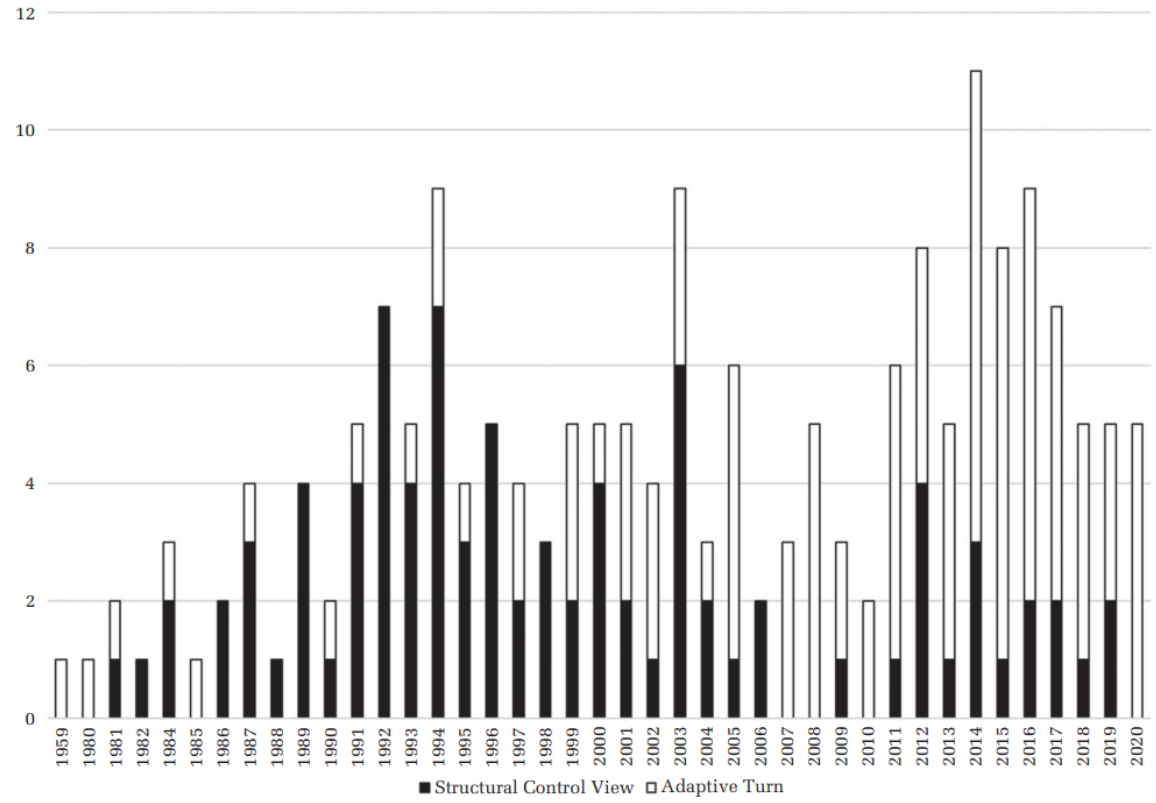


Figure 2.9: ***Development of the two Perspectives of Strategy Execution Research (adopted from*** (Weiser, et al., 2020)

From Figure 2.9, it is evident that elements of the adaptive view have been there for a long time, however it started dominating literature in strategy execution in the past two decades. Figure 2.10 below shows the proposed conceptual framework that Weiser et al, 2020 tabled as a means to complete the adaptive turn. This model combines distinctive key elements of both worlds while incorporating feedback loops from enacting strategy to its realisation.

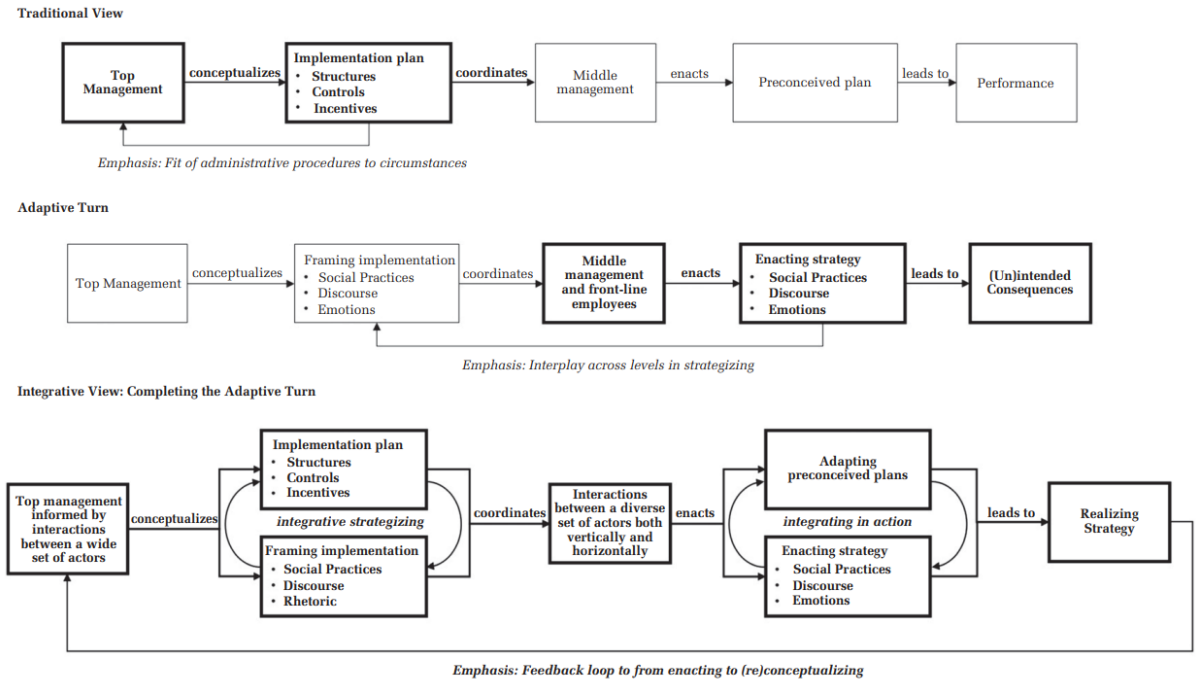


Figure 2.10: ***Integrative Model for Completing the Adaptive Turn in Strategy Execution (adopted from*** (Weiser, et al., 2020)

Consistent with these authors, this researcher also appreciates both extremes but seeks to understand past work and some key generic frameworks. Hence the next sections interrogate the common generic frameworks of the past.

2.3 Previous & Current Efforts - The Strategy Execution Frameworks

This study is about strategy execution as such, it is necessary that a reflection be done on the extant literature on frameworks that have been and are currently used to guide implementation. The next section discusses these frameworks [the author and year; the framework design basis; the framework proposition and the key takeaway / contribution] thereby exposing the gaps.

It should be noted that the implementation frameworks shown are not exhaustive but represent the dominant approaches that have been used as a basis to tailor some of the specific models used in implementing strategy. It should also be noted that extensive and notable work has been and is still being done by various authorities some of which is philosophical; some querying a specific dimension of strategy execution and some prescriptive to a specific sector or context. Nonetheless, the research will acknowledge that effort.

To that end, some notable works have been developed in the past four to five decades. The dominant common generic frameworks as cited in industry and academic publications are summarized in Figure 2.11, below. Note that there are other frameworks that various researchers have synthesized, which are not shown in this view that would be considered 3rd generation frameworks, however some of those are more prescriptive and /or sector based. For example, the 'MERIL -DE model for closing the strategy execution gap in the public sector' by Olivier & Schwella (2017). The other frameworks that evolved in the past decade are generic, however, they focus on for example one dimension of implementation – for example, the 'introductory framework for strategy execution effectiveness' by Tawse & Tabesh (2021).

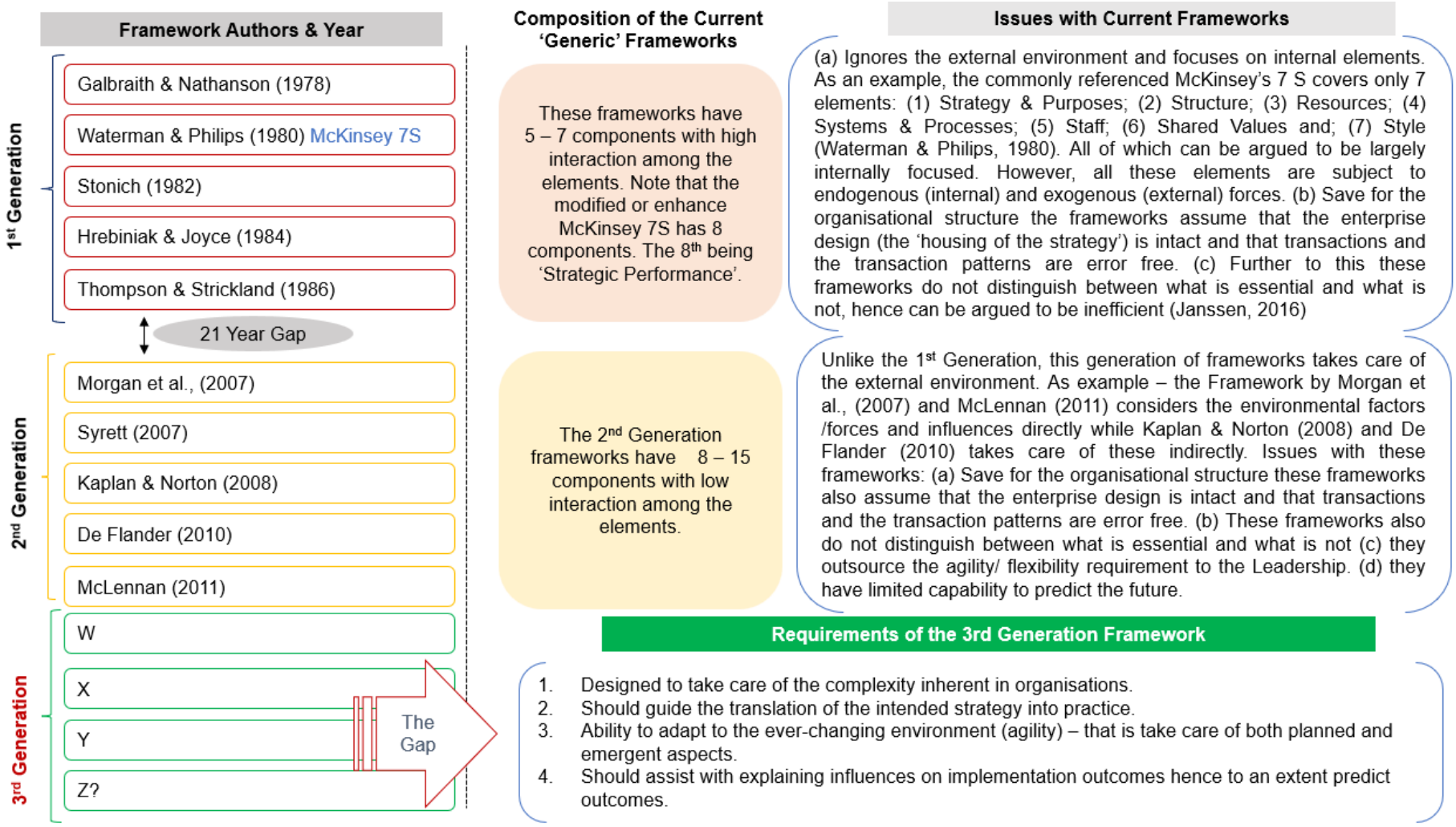


Figure 2.11: ***Common Strategy Execution Frameworks*** *(Authors own illustration)*

It is also important to mention that several important works to understand; enhance the current and inform future frameworks have been done by various authors. Of note is the work by Friesl, et al., (2021) – 'Strategy Implementation: Taking stock and moving forward' where the authors acknowledge the absence of a unified body of research on strategy execution and the fragmented literature. Important contributions have also been made by Nilsen 2015 in his article 'Making Sense of Implementation Theories, Models, and Frameworks'. Nilsen used an interdisciplinary systematic literature review to analysing implementation models and theories to enhance understanding and explain implementation models. Another objective of this article was to foster cross-disciplinary dialogue among implementation researchers. The author proposes a taxonomy of five (5) theories, models, and frameworks: process models; deterministic frameworks; classic theories; implementation theories and evaluation frameworks.

Other contributors and authors of note include Noble (1999); Radomska (2014) and Heesen (2016).

2.3.1 The Dominant 'Generic' Frameworks as Extracted from Literature

Also shown in Figure 2.11, are some issues with the current frameworks and the requirements of the 'To Be"' 3rd Generation frameworks of Strategy Execution. Figure 2.11 outlines some notable generic framework developed by various researchers and practitioners over the past decades. What is unique with these frameworks is that (a) they were meant to be generic in application (b) they introduced unique insights and (c) they are simple to understand and yet provides useful insights to aid the successful strategy execution.

The next pages outline the main features of each of these 10 models.

Table 2.3 Gap Analysis of Galbraith & Nathanson's Framework - 1 of 10

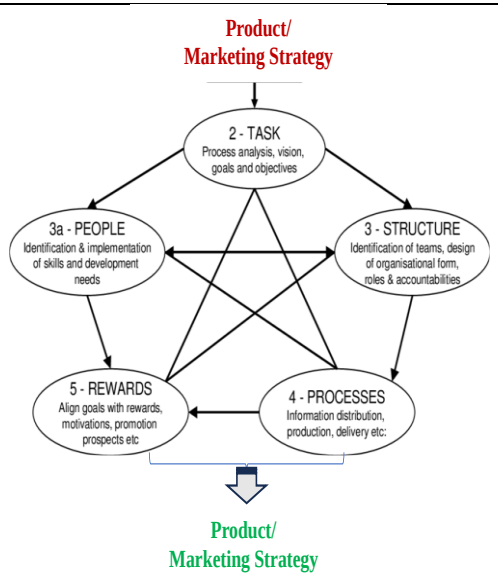
Author & Year	Framework Design Basis	Framework Proposition	Contribution / Key Take-away
Galbraith & Nathanson (1978) **The pioneers of the Strategy Execution - specific models*	The framework was designed based on a systematic perspective [input – process – output] with a clear justification. Influence: Chandler's doctrine (1962): puts high emphasis on organisational structure when formulating or executing strategy (strategy drives structure or structure follows strategy)	It proposes a Product or Marketing strategy as an input of the system (as per the exhibit below) and is processed by a combination of five (5) interrelated elements including (a) Task (b) People (c) structure (d) Reward systems and (5) Information & Decision process. Together they create Performance.	These are the pioneers of the Strategy Execution specific Models and guided by the works of Chandlers the first to formalise the role of Structure and Process in Strategy Implementation. It is important to note that this work was based on largely on a literature review
Gaps	*Ignores the external environment (or external context).* *Ignores the issues of culture and related shared values.* *It reduces a strategy to a task – complex as it may be.* *It ignores leadership style as a key element in strategy implementation,* *Focus more on the Infological layer (the process level) and is silent on the ontological aspects.*		Note that: item 2 in the exhibit was later changed to 'Strategy' - Galbraith (2002) in the commonly referred to as 'The Star Model.

Table 2.4 Gap Analysis of the McKinsey's 7s Framework - 1 of 10

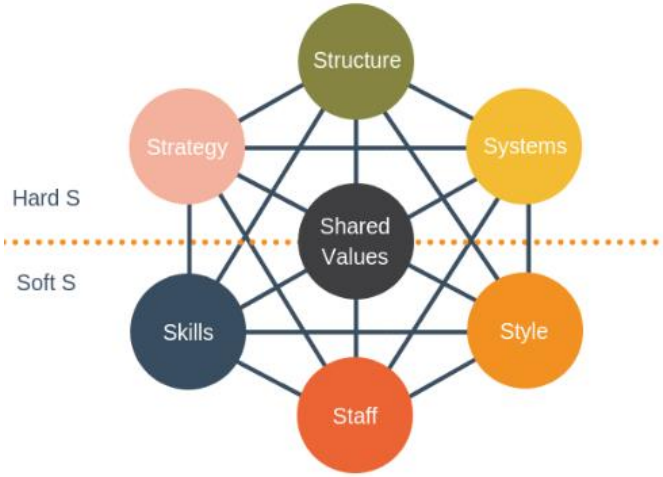
Author & Year	Framework Design Basis	Framework Proposition	Contribution / Key Take-away
Waterman & Philip (1980), Conceptual Framework popularly known as the **McKinsey 7s** and now McKinsey 8s Higgins (2005)	The framework was developed from applied research done by McKinsey consultants in the late 1970s to help diagnose and to develop tools for advisory and consequently show the impact of the interconnectedness. The authors Robert Waterman and Thomas Peters used this framework to analyse over 70 large organisations and many other entities by other practitioners thereafter. Note that 8s – replaced *skills* with *re-Sources* and added *Strategic Performance*.	It proposes a collection of interrelated factors that influence an organisation's ability to change. A notable structural issue in this framework is the absence of hierarchy which creates dependence among the factors. In other words, refereeing the framework below 'strategy' requires shared value, staff (people), skills, and structure to get things done (effectively effect change).	Contrary to the earlier model by Galbraith & Nathanson (1978), it was introduced to address the critical role of *coordination* rather than emphasising structure in change management and organisational effectiveness. It is one of the classic frameworks that have stood the test of time. It introduces 'shared value' as a central component, with s8 adding 'Strategic Performance' as a derivative of the s shown below.
Gaps	*Also ignores the external environment (or external context)* *Focus more on analysis of the organisational from an Infological viewpoint (the process level) and is silent on the ontological aspects (for example the cooperation elements including the make-up of agreements)*		

Table 2.5 Gap Analysis of the Stonich's Framework - 3 of 10

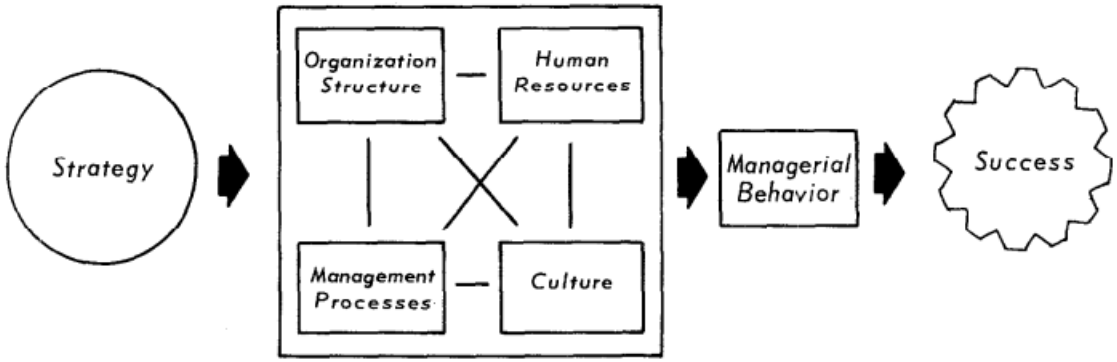
Author & Year	Framework Design Basis	Framework Proposition	Contribution / Key Take-away
Stonich (1982)	The framework was designed based on viewing strategy execution as a system. Relative to Galbraith & Nathanson's framework, culture is added. The argument here that economic outcomes also require ensuring that the strategy can be implemented in a particular setting or context.	The author proposes that to achieve the strategic objectives - strategy formulation as an input is processed by four (4) interrelated elements – *organisation structure; management processes, HR (Human resources) and culture.* See the exhibit below.	Making it a requirement to address cultural risks. In other words, aligning the economic answer to the organisation's specific context requirements – in particular how things are done in that setting. It is important to note that this work was based largely on personal experience and no particular research method.
Gaps	*Also ignores the external environment (or external context)* *Focus more on the Infological layer (the process level) and is silent on the ontological aspects (for example the cooperation elements including the make-up of agreements)*		

Table 2.6 Gap Analysis of the Hrebiniak & Joyce's Framework - 4 of 10

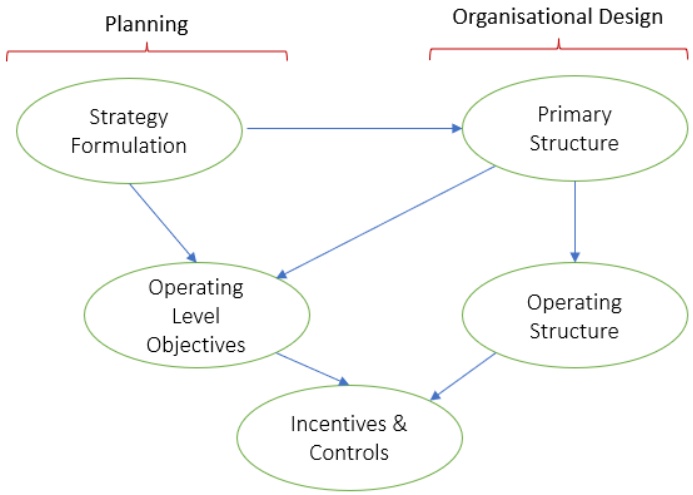
Author & Year	Framework Design Basis	Framework Proposition	Contribution / Key Take-away
Hrebiniak & Joyce (1984)	This model sees Strategy Execution as a step-by step process has five (5) steps grouped into two phases: (a) Planning & (b) Organisational design Because of its focus on structural issues, the framework has been argued to have been influenced by Chandlers' work on Strategy & Structure.	It indirectly proposes to answer two questions: a. What decisions are necessary to implement strategy | Planning? b. How can these be organised for successful strategy implementation | Organisational Design?	It introduces strategy planning (formulation) in the arena of execution, in other words inadvertently pushes for the design of implementable strategies. It is important that this work was based on largely on personal experience and a structured literature review.
Gaps	*Ignores the issues of culture and related shared values.* *It is silent on leadership style as a key element in strategy implementation.* *It ignores the issues of skills and competent actors.* *It ignores the issues of resources to support the execution effort.* *Focus more on the Infological layer (the process level) and is silent on the ontological aspects.*		

Table 2.7 Gap Analysis of the Thompson & Strickland's Framework - 5 of 10

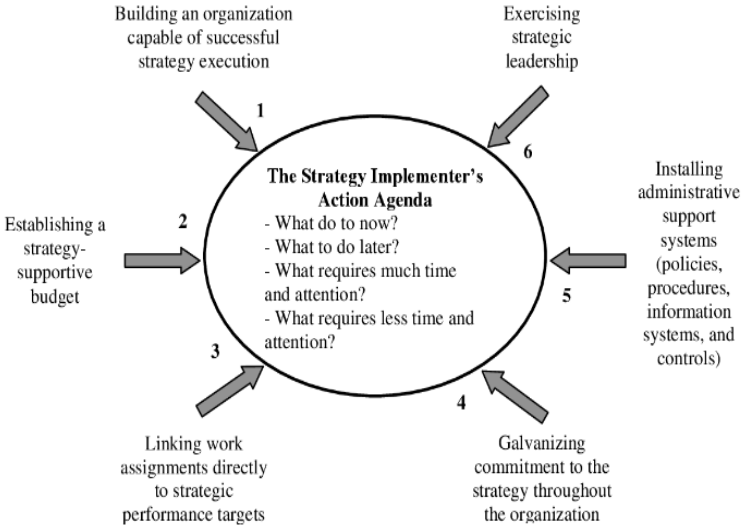
Author & Year	Framework Design Basis	Framework Proposition	Contribution / Key Take-away
Thompson & Strickland (1986)	The framework was designed based on key tasks that must be done by the senior leadership in implementing strategy. It is important that this work was based on largely on personal experience and a structured literature review.	It proposes and considers strategy execution as a combination of the step-by-step process of cause-and-effect correlation between the six (6) steps outlined below and strategy implementation agenda.	Contrary to the earlier models it emphasises two key aspects: – Building the capability of execution – Exercising strategic leadership (putting execution at the centre of leadership
Gaps	*Also ignores the external environment (or external context)* *Focus more on the Infological layer (the process level) and is silent on the ontological aspects (for example the cooperation elements including the make-up of agreements)*	 Thompson & Strickland (1986)	

Table 2.8 Gap Analysis of the Morgan et al.'s Framework - 6 of 10

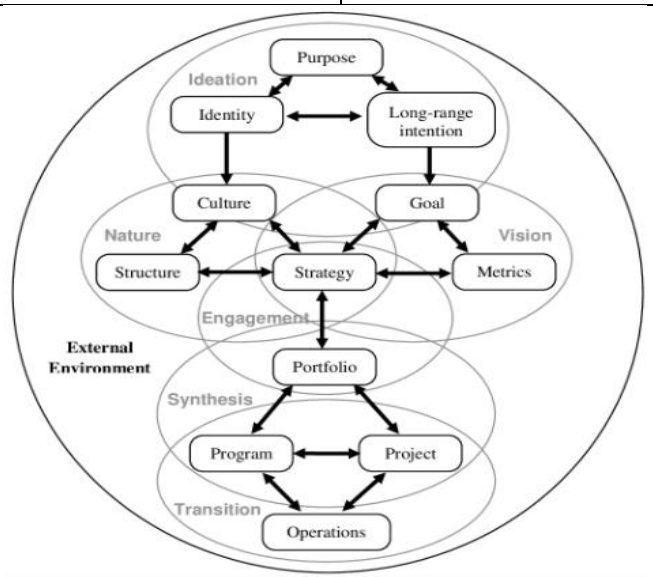
Author & Year	Framework Design Basis	Framework Proposition	Contribution / Key Take-away
Morgan et al., (2007)	The framework is structured around linking strategy formulation and its contextual elements to the project management pillars [portfolio; programme and project management] including the operationalisation thereof (operations) Influence: Systems thinking and the sudden surge in appreciation of the project management approaches as an aid to cascade and operationalise strategy	It proposes that strategy execution is best executed via six (6) imperatives that overlap in a sequential fashion (a) ideation (b) nature (c) vision (d) engagement (e) synthesis and transition It is important to note that this work was based on largely on personal experience and no specific research method.	It illuminates the project management pillars and their role in executing strategy. In other words, the link between strategy formulation and strategy making is made visible via the use of project management tools and processes.
Gaps	*Also ignores the requirement of resources and skills (actors capable of executing strategy).* *It is silent on leadership style as a key element in strategy implementation.* *Focus more on the Infological layer (the process level) and is silent on the ontological aspects.* *Another issue is that more than half of its elements are about strategy formulation.*		

Table 2.9 Gap Analysis of the Syrett's Framework – 7 of 10

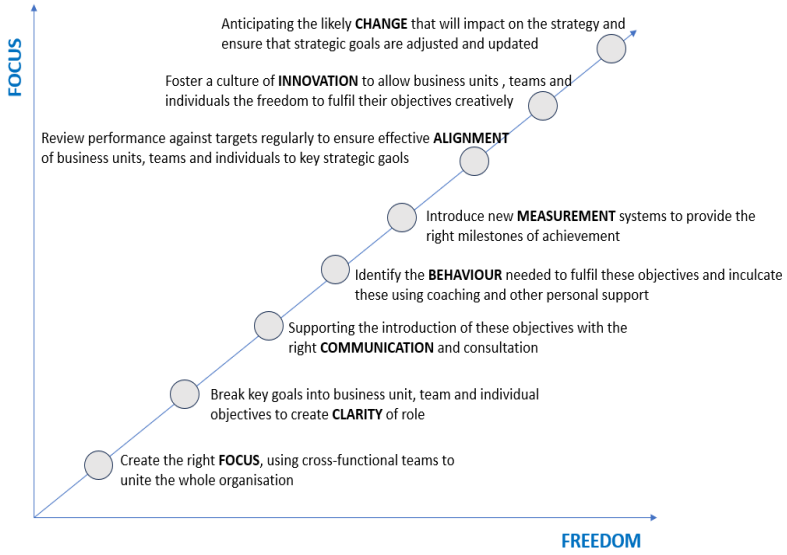
Author & Year	Framework Design Basis	Framework Proposition	Contribution / Key Take-away
Syrett (2007)	Syrett's framework pathway to strategy execution was designed based on a process view of dealing with complex matters. It is important that this work was based on largely on a case study, personal experience and data mining.	Syrett's argues that successful strategy execution (SE) depends on two factors. (a) **Focus**: on the 'right' strategic goals (b) **Freedom**: granted to all parts of the organisation	Contrary to the earlier models - this is one of the first models to illuminate matters of, a) The power of focus in getting things done and b) Providing clarity of purpose, and personal support to actors and then designing systems for agility. This designed freedom can be argued to foster a culture of innovation. c) Also introduced the need for SE metrics
Gaps	*It is silent on the need of a reflection on the external environment (or external context).* *Also ignores the requirement of resources and skills (actors capable of executing strategy).* *Focus more on the Infological layer (the process level) and is silent on the ontological aspects (for example the cooperation elements including the make-up of agreements).*	

Table 2.10 Gap Analysis of the Kaplan & Norton's Framework – 8 of 10

Author & Year	Framework Design Basis	Framework Proposition	Contribution / Key Take-away
Kaplan & Norton (2008) This is sometimes referred to as *Kaplans & Nortons Management System of Strategy Execution*	The framework was designed based on personal experience and a research focus group in twelve companies that have been using the balanced scorecard designed by Kaplan and Norton. As such, the framework is anchored on monitoring and evaluation. Influence: is by the school of measurement of strategy execution effort and mirrors the PCDA cycle	The authors argue that successful strategy execution can be attained via a six (6) stage step-by-step circular process. Step 1: Develop the strategy Step 2: Plan the strategy Step 3: Align the organisation Step 4: Plan operations Step 5: Monitor and Learn Step 6: Test and adopt	– It emphasises the importance of planning execution in the initial stages [in the strategy formulation stage] – introduces monitoring and evaluation as a central component.
Gaps	*Also ignores the external environment (or external context).* *It also ignores the leadership style aspects* *It also does not address the issue of culture directly.* *Focus more on the Infological layer and Datalogical level and is silent on the ontological aspects (for example the cooperation elements including the make-up of agreements).*	

Table 2.11 Gap Analysis of the De Flander's Framework – 9 of 10

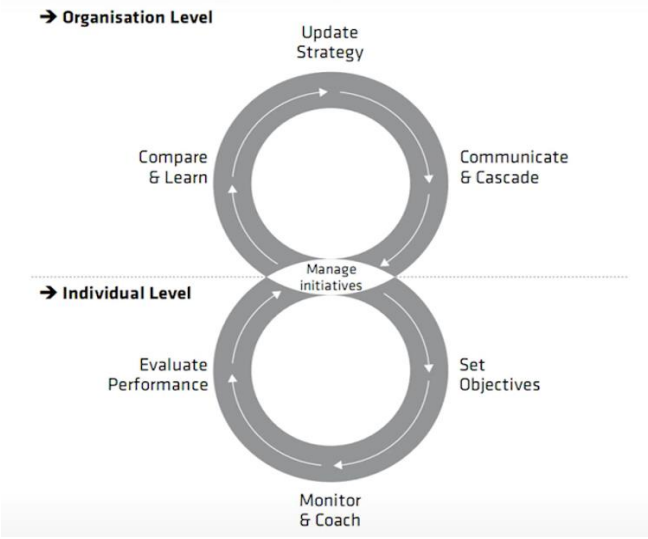
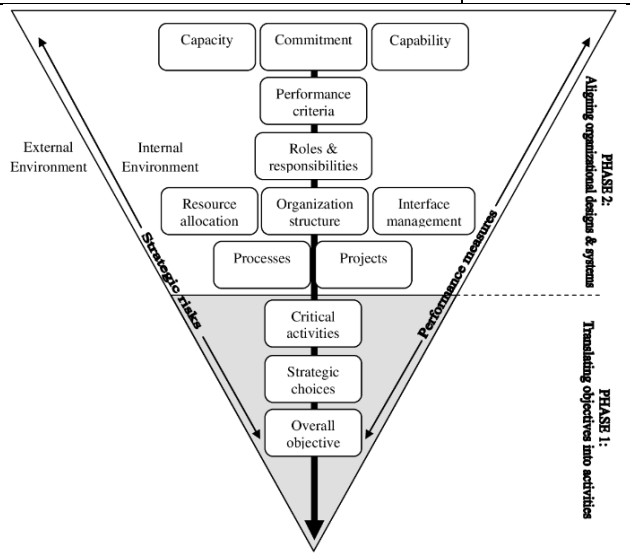
Author & Year	Framework Design Basis	Framework Proposition	Contribution / Key Take-away
De Flander's (2010)	The framework was designed based on Kaplans and Norton's model and has similar steps but without two circulations at organisational and at the individual level. The model was designed based on archival analysis, personal knowledge, interviews, and data mining.	It proposes a collection of interrelated factors that influence an organisation's ability to change. A notable structural issue in this framework is the absence of hierarchy which creates dependence among the factors. In other words, refereeing the framework below 'strategy' requires shared value, staff (people), skills and structure to get things done (effectively effect change).	The author introduces two areas from which execution is aided (a) the organisational level (b) the individual level and agrees with many authorities on the importance of a 'good strategy' – that which should be executable.
Gaps	*Also ignores the external environment (or external context)* *It also ignores the leadership style aspects* *It also does not address the issue of culture directly* *Focus more on the Infological layer (the process level) and is silent on the ontological aspects (for example the cooperation elements including the make-up of agreements)*	 De Flander (2010)	

Table 2.12 Gap Analysis of the McLennan's Framework – 10 of 10

Author & Year	Framework Design Basis	Framework Proposition	Contribution / Key Take-away
MacLennan (2011)	The framework was designed based on longitudinal case studies of two organisations and personal knowledge of the author (also a management consultant).	The author proposes a step-by-step process with logically sequential steps of tasks grouped in two phases Phase 1: Translating Objectives into activities Phase 2: Aligning organisational designs and systems to that strategy	The author is one of the few authors that advocated for organisational alignment of designs and systems to the intended strategy. Another key contribution is also on the importance of translating strategic objectives into tasks, specifically the critical tasks.
Gaps	*It also ignores the leadership style aspects.* *It also does not address the issue of culture directly.* *Focus more on the Infological layer (the process level) and does not directly address the ontological aspects (for example the cooperation elements including the make-up of agreements).*	 (MacLennan, 2011)	

Even with the base and generic frameworks from which other frameworks have evolved in the past decade the complexities inherent in Strategy Execution have shown that effective execution stills fail.

2.3.2 The Role of Project Management in Strategy Execution

Strategy has generally been rolled out via projects. A typical common conceptual relationship depiction that substantiates this notion is shown below (PMI, 2021). This model shows that information (strategy and related strategic objectives) is cascaded down from leadership to specific portfolios with set portfolio KPIs. Thereafter the desired outcomes, benefits, and value targets are passed to programmes [programs] and portfolios leading to the translation of strategy into actions. Even though this approach has been adopted for the past three decades or so, the challenge is that projects still fail in execution (MacLennan, 2011; PMI, 2017).

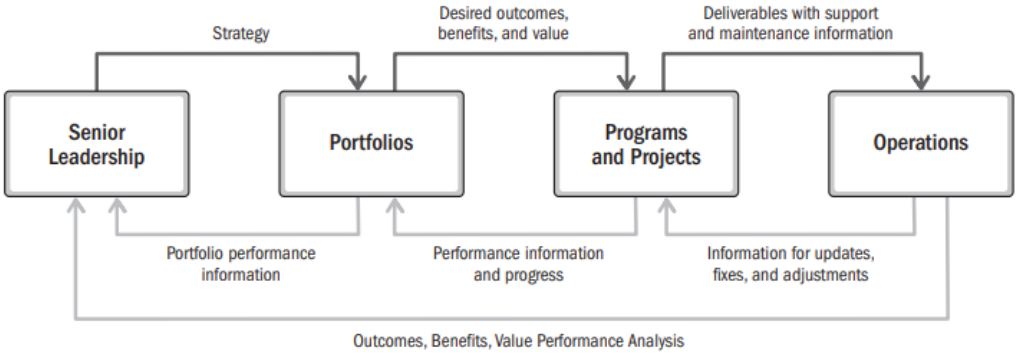


Figure 2.12 ***Relationship between Strategy and Projects*** (Adopted from PMI, 2021)

This model started getting emphasis in the Project Management Institute - 2013, Project Management Guide. While this model has generally been adopted and is considered good practice, read together with the various strategy execution frameworks presented earlier, the continued failure of executing strategy suggests something is missing with the current approaches. The obvious issue with this model is that it assumes a pure process view and does not make visible other critical dimensions like – organisational culture, leadership, people, and communication alike.

Put differently this conceptual framework and the ten (10) presented earlier do not easily translate into models that practitioners or industry can use (Bawtree & Young, 2022). The researcher argues that Project Management in its full form (portfolio, programme, and project management) is important as it provides the necessary governance required for strategic

objectives, however, it is not a sufficient condition. Other tools, models and considerations are required.

2.3.3 Transition / Change Management

Transition / Change Management in this study is used interchangeably. It is now common cause that change is inevitable. In the past century, the world has transitioned from the machine age to the systems age and now the digital age. In the world of work, transition happens everywhere, for example, organisations transition from development to production or from feasibility studies to actual programmes / projects. Such transitions can be challenging and would require programme or project focus as the transition of a new system can be challenging (Kossaikoff, et al., 2011).

To counter this challenge companies, engage the services of change managers. However, not all organisational changes are strategic nor does the literature on change management focus on the issues of strategy execution (MacLennan, 2011). Change in organisations is pervasive and takes many forms as such, the researcher elected to remain within the scope of this study.

Just like project management models, the change management frameworks also do not focus on the essence of strategy execution [i.e. what really drive strategy execution]. To counter the issues of effecting changes at the process level in complex organisations saw the advent of business process -reengineering.

2.3.4 Business Process Re-engineering (BPR)

The need to facilitate change and improve the effectiveness of transformation efforts in organisations in the early 90s introduced a new concept which was coined Business Process Re-engineering (BPR). According to Daft and Marcic (2011) as cited by Mushaathoni & van der Waldt (2018 p.215) "… the main focus of BPR is adjustments to core business processes that cut across the institution [enterprise]". BPR has been described variously in literature – some of the key descriptions are outlined below. Reengineering is the fundamental re-thinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service, and speed (Hammer, 1994 as cited by Kader & Dwolatzky, 2016 p.103). BPR is a management strategy originally pioneered in the early 1990s that focuses on the analysis and design of workflows and business

processes within an organisation. The aim is to fundamentally rethink ways to improve customer service, cut operational costs and become a world-class competitor (Rao, et al., 2019 p.518). Business Process Reengineering is the radical redesign of business processes to achieve dramatic improvements in productivity, cycle times, quality, and employee and customer satisfaction (BAIN, 2023). Of all these descriptions the common thread lies on:

- Reviewing processes
- Reviewing workflows
- Reviewing ways to win (a management strategy), hence can be taken as a high-level approach

As shown above, BPR focuses on redesigning processes targeting the desired business value, be it productivity; customer profitability (e.g., ARPU – *Average Revenue Per User* in telecoms), expansion of customer base, return on sales; (Oesterle & Hubert, 2021 p.4). As explained in the introduction chapter and as elaborated in the next sections, unlike enterprise engineering, it should be noted that BPR – a) does not focus on the ontological layer (the essence of the enterprise) and; (b) is more of a change initiative than a design or analysis approach (in other words it seeks less to understand but more to tailor for the desired end (to achieve what BAIN calls 'dramatic process improvement'.

However, the complexities inherent in Strategy Execution have shown that effective execution still fail with optimised processes. Some of the reasons for this failure cited in extant literature on Strategy Execution include – poor communication; lack of accountability for implantation decisions; using the wrong measures; lack of alignment between implementation and culture lack of leadership; lack of leadership and lack of strategy implementation models (Speculand, 2017; Bawtree & Young, 2022). This study argues that the majority of these reasons have roots that can be linked to the architecture of the organisation at the ontological layer. As such, there is a need for deeper understanding of the enterprise hence the case for Enterprise Engineering.

2.3.5 Measuring the Strategy Execution Effort

As stated in chapter 1, under section 1.9 (Delimitations & Scope of the Study), it is not the intention of this study to broaden the scope by focusing on implementation evaluation, however strategy evaluation approaches have been used to anchor some strategy execution frameworks, notably Kaplan & Norton's Framework presented earlier (model 8 of 10).

Proponents of the ‘strategy execution measurement school’ suggest that “a more balanced and strategy - focused performance measurement facilitates translating strategy into action and focus on behavioural factors that constrain strategy execution decision making” (Hu, et al., 2017). Another angle from the proponents of the school of measurement is that designing and deploying dashboards assists in improving implementation. This author (the researcher) departs from this notion on two fronts – (1) measurement assumes something (work) has been done (that which needs checking) as such, this approach is not proactive (or deterministic). In other words, it departs from the dictates of the engineering approach; (2) it ignores critical elements of strategy execution that influence an ‘acceptable’ dashboard - for example, the quality of the strategy, suitability of the deal or the transaction, the robustness of the contractual framework and its related penalties, the team skills and competence; the organisational culture, the leadership style and decision rights etcetera.

This research is about EE and its practicality in aiding strategy execution. As such the next part of this literature review will aim to understand EE, its nature, and the possibilities it affords.

Part B: Enterprise Engineering, its Nature, and Typical Design Flaws

This part of the literature review discusses the nature of enterprise engineering and the potential thereof, starting with reflecting on the organisational design; the EE - related governance themes, and the theoretical foundations of EE (the basic transaction pattern and modelling of the organisation at the ontological layer). It also covers elementary construction flaws (errors) in detail and concludes by reflecting on the use of EE in practice.

2.4 The Nature of Enterprise Engineering

2.4.1 Organisational Design

Just a decade ago, a random search of the word *Organisational Design* on academic sites, showed that the area of management sciences then was biased towards the shaping of organisational forms (Visscher & Visscher-Voerman, 2010) – what other writers call the strategy implementation organisational structure and processes.

Organisational design has been defined variously in literature, for this study, organisation design will be described as a process of developing a blueprint to ensure that the organisation has suitable structures and resources to execute the intended strategy (Junginger, 2017; Alter, 2017; AIHR, 2022). It is important to note that these 'structures' and 'processes' are not limited to the organisation structure from a human resources perspective but cover various areas as guided by Galbraith's STAR Model and several other authorities: (a) The required capabilities (the unique differentiators, that which is needed to be competitive); (b) Structure (the key roles, the power balance - etcetera.); (c) The processes (of decision making, the workflows etcetera); (d) The metrics / rewards and (e) The talent required and the related HR practices. All in all, depending on the strategy and the capabilities required, all these elements must be aligned.

Several authorities have tried to dwell on the differences between organisational design (OD) and enterprise engineering (EE) with the unintended goal of using one or the other - as a response strategy to better prepare for the evolution and exponential growth of disruptive technologies in the second decade of the 21st century (Magalhaes & Proper, 2017). However, the recently established Organisational Design & Enterprise Engineering (OD&EE) journal is built on the premise that there should not be an 'either - or' relationship between OD and EE (Lapalme, 2017), but rather an integrated approach that brings out the best of the two (Junginger, 2017; Alter, 2017). In as much as the researcher agrees with the call not to draw

lines around a given subject, on the contrary, in this study, the author believes it is important to locate enterprise engineering in the bigger realm of organisation theory (design) to focus the research effort.

Organisational Design (OD) is a discipline within the field of organisational theory that originates from organisational sciences while Enterprise Engineering originates from engineering sciences and information systems and is sometimes viewed as an extension of industrial engineering (Strikwerda, 2012; Janssen, 2016; Magalhaes & Proper, 2017). Organisation, the 'O' in OD is defined variously in literature, but in this study, the definition by the OD&EE journal contributors suffice – "…an organisation is a configuration of resources (social, digital and physical) and activities in pursuit of a purpose" (Magalhaes & Proper, 2017; p2). On the other hand, for completeness, an enterprise the 'E" in EE is a systematic way an organisation endeavours to achieve (one of) its purposes – "…a systematic purposeful activity" (ibid). In other words, an enterprise as system of systems can have several enterprises within it. Put differently enterprises are a subset of organisations. Consequently, the scope of OD is more holistic covering corporate governance; legal (how organisations are incorporated); finance (the capital structure); the internal structure as well as the external structure (strategic alliances) etcetera (Strikwerda, 2012). This study will focus on the enterprise.

As will be expanded in the next sections, within the enterprise there are key governance themes that several authorities have argued are key in implementing strategy.

2.4.2 Governance Themes: Corporate, IT and Enterprise Governance

The challenge of Strategy Execution has been attributed to various organisational levels – from the corporate stage (the board level) down to the operational level (where the job gets down). Failure to execute strategy has also been attributed to inadequate governance resulting in inadequate strategy development and implementation (Hoogervorst, 2009). Some researchers have reported absence of risk management systems and controls leading to corrupt activities as a reason why companies including state-owned enterprises particularly in Africa fail in execution (Venter, 2014).

The word 'governance' originates from the Latin word 'gubernare' meaning to control, in the original context it meant to control a ship (Hoogervorst, 2009). As such, governance is about 'regulating', 'controlling', or guiding something or some intervention. Governance has been defined as a group of policies, decision-making procedures, and management processes that

work together to enable the effective planning and oversight of activities and resources (Rao, et al., 2019). This is the definition of governance that guides this study.

Corporate Governance

Hoogervorst (2009 p.153) argues that corporate governance concerns the way enterprises are guided, and that this corporate governance theme originated then from the need to preserve financial / economic interest of shareholders in particular - for stock exchange listed companies. This meant the board was and is still the driver of corporate governance. In many jurisdictions, South Africa included – various standards, frameworks, acts, and policies are used to govern listed entities: ISO 37000 Standard for Corporate Governance for Organisations; King IV for South Africa and surrounding countries; Companies Acts; the Public Finance Act, etc. The more recent versions of corporate governance standards include strong emphasis on effective (Good) performance; ethical culture, effective control, and ESG (Environmental, Social, and Governance) (King IV, 2016; ISO 37000:2021). Over the years the mandate of the board in the realm of corporate governance has moved from a narrow focus on financial / economic interests of shareholders to a broader perspective to include (a) enterprise design, (b) enterprise strategy, (c) successful strategy execution (what King IV refer to as enterprise performance) (Hoogervorst, 2009; King IV, 2016; ISO 37000:2021).

"Proper enterprise design is essential for operationalising strategic choices successfully" (Hoogervorst, 2009: 155) while enterprise performance (successful strategy execution) is one of the four pillars in both King IV and ISO 37 000 (King IV, 2016). It follows Corporate Governance is a key construct in building an effective Strategy Execution framework. It should be noted that the implementation of corporate governance in its complete form is sometimes diluted by the more traditional risk management, which itself is a subset of the former. This leads to need of clarity by way of a working definition for this study.

> "Corporate Governance is the totality of internal structures and systems, as well as external rules and legislation, for internal control and risk management that ensures that enterprises exercise their responsibilities towards shareholders effectively and adequately" (Hoogervorst, 2009: 155).

"Risk Management is about how firms actively identify, evaluate actual and potential business risks and the subsequent and continuous development of programmes that aim to reduce losses before they occur, by either putting controls and assurance measures in place or by financing

and insurance measures" (Hough, et al., 2011: 341). Put differently risk management is more about identifying and selecting the appropriate approach to mitigate or manage possible occurrence of uncertain events.

This study will not further interrogate the corporate governance space as that is beyond the scope of this effort but seeks to show the relevancy of corporate governance in aiding Successful Strategy Execution and consequently its sometimes narrow focus as the Corporate governance pillars (Ethical Issues; Effective Performance, Legitimacy, and Effective Control) cited in King IV and ISO 37 000 are a few elements of the several enterprise issues that may impact stakeholder interests including business sustainability. However, the study will also show the relevance of IT Governance in driving organisational performance.

Information Technology (IT) Governance

The notion of IT Governance has been adopted for years (since the early 1990s) as IT capabilities and IT infrastructure /assets have received wide acceptance as business enablers (Hoogervorst, 2009).

IT Governance has been defined as "… the framework and structure that links IT resources and information to enterprise goals and strategies. This implies putting in place – best practices for planning, acquiring, implementing, and monitoring IT deployment and performance, to ensure that the enterprise's IT assets support the business objectives" (Rao, et al., 2019 p.537).

Some authorities have argued that the attention given to IT Governance was founded on the some concerning footing some of which include (Hoogervorst, 2009);

- Lack of clarity on the advantages of IT investments with some being controversial
- Vague linkages between IT investments and Enterprise Strategic intentions
- IT systems limiting enterprise flexibility and the agility of related implementation models
- IT developments are often technology-driven and not necessarily strategy-driven
- Unproductive relationships between IT Users and IT professionals
- High costs for IT developments and operation

It can therefore be submitted that the case for IT governance was founded on establishing successful and cost-effective use of IT or ICT. Considering the above points - read together, a catch-all concern is businesses making decisions around IT capabilities rather than the strategic

intent or the organisational needs. The researcher therefore submits that IT Governance is just but an element of a bigger governance domain however it is a critical enabler. This argument will be substantiated in the next section on enterprise governance.

Enterprise Governance

Enterprise governance in the context of this study will be defined as the organisational competency of continuously exercising guiding authority over enterprise strategy and architecture development, and the subsequent design, implementation, and operation of the enterprise (Hoogervorst, 2009)

Enterprise governance focuses on incorporating organisational context, the wider shareholder interests (not only financial, and enterprise design) in the governance framework. Shareholder interests range from financial reporting, compliance (internal and external); development of 'good and sustainable strategies; building capabilities for strategy execution, IT information economics, IT enablement capabilities, and the unity between IT systems and enterprise context. As shown in the introduction (Chapter 1 of the writeup) notwithstanding the many reasons why strategy implementation fails, SE is a compromised when teams work in silos and failure to use frameworks that focus on the 'whole' (the enterprise as a complex system).

The focus areas and the relationship of the three governance perspectives: (a) Corporate Governance (b) IT Governance and (c) Enterprise Governance, are outlined in Table 2.13 and Figure 2.13 below, respectively.

Table 2.13 Focus Areas of the Various Governance Domains

Corporate Governance	***IT Governance***	***Enterprise Governance***
• *Effective performance (King IV, 2016; ISO 37000)* • *Responsible Stewardship or Legitimacy (King IV, 2016; ISO 37000)* • *Ethical Culture / Behaviour (King IV, 2016; ISO 37000)* • *Effective Control (King IV, 2016; ISO 37000)*	• *Control formulation of IT Strategy* (Hoogervorst, 2009) • *Enterprise and IT Strategy Alignment* (Rao, et al., 2019) • *Control Implementation of IT Strategy* (Hoogervorst, 2009) • *IT Best Practices Framework* (Rao, et al., 2019)	*Over and above the elements covered under Corporate & IT Governance:* • *Strategic & Operational Performance* (Hoogervorst, 2009) • *Verification and Assessment of Enterprise Strategy (Hoogervorst, 2009)*

• *Compliance with Rules & Legislation (King IV, 2016; ISO 37000)*	• *IT Maturity Assessment* (Rao, et al., 2019)	• *Integrated view of Compliance & Performance anchored on Coherent and Consistent Enterprise Design* (Hoogervorst, 2009)

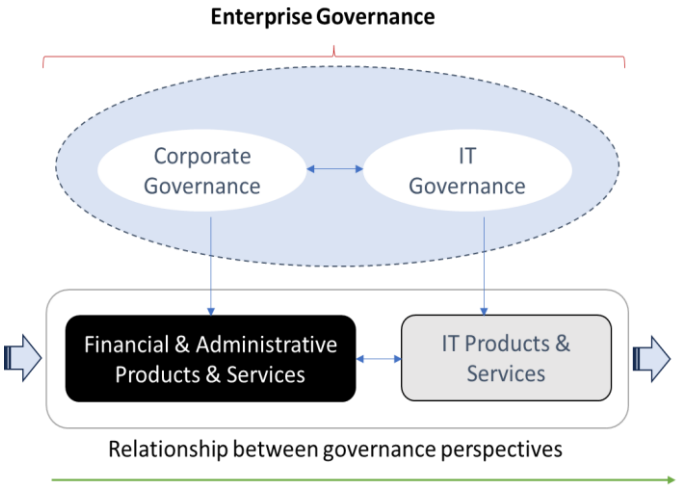


Figure 2.13: ***Relationships Between the various Governance Perspectives*** *(elements derived from Hoogervorst, 2009)*

As such, enterprise governance covers both the traditional focus on compliance elements and the organisational performance requirements. Enterprise governance has been described as "the set of responsibilities and practices exercised by the board and executive management with the goal of providing strategic direction, ensuring that objectives are achieved, ascertaining that risks are managed appropriately and verifying that organisations' resources are used responsibly" (IFAC, 2004 as cited by Hoogervorst, 2009 p.12). In simple terms, this enterprise governance is the accountability structure in an organisation (Hoogervorst, 2009).

It should be noted that design competence in enterprise governance is achieved by using engineering principles to understand, design and re-design enterprises in a coherent and holistic way that which experts in enterprise/ organisational design call *enterprise engineering* (EE) (Hoogervorst, 2009; Dietz & Hoogervorst, 2015). Put differently this means the application of the same engineering principles and practices used in dealing with other artifacts or systems in the physical systems world (Fernandes & Tribolet, 2021). The referred to enterprise

engineering approach is underpinned by two fundamental concepts (1) Enterprise Ontology and (2) Enterprise Architecture (Dietz & Hoogervorst, 2015).

- **Enterprise Ontology** – *is the study of the nature of being and existence of an enterprise by focusing on the implementation – independent essence of the enterprise* (Dietz, 2006; Dietz & Hoogervorst, 2015; Hoogervorst, 2018). Since it focuses on the 'essence' of the enterprise, it follows it is independent of the current realisation and implementation of the organisation. This then requires the researcher to distinguish between the observing subject and the observed object. It also follows that communication (including the type of information and the direction of flow) is key to understanding a systems Ontology (Dietz, 2006).

  It should be noted that an enterprise engineer, in one part - because they are an off-shot of the engineering profession, views the world as real and uses science to expose the truth/s but in the other part – because of the appreciation of systems thinking, appreciates the importance of perceptions and mental pictures inherent in social systems.

  The goal then of enterprise ontology is to understand the essence of the construction and operation of enterprises (Dietz, 2006). The research will not elaborate on the theory of Enterprise Ontology at this stage as this forms the core of this study but will revisit the theory in the next sections. For now, the researcher will reflect on the 2nd pillar of enterprise engineering: Enterprise Architecture (EA).

- **Enterprise Architecture (EA):** Enterprise Architecture has been described and defined variously in literature. Because of its pervasive use in the Information Technology domain, some of the definitions can be argued to be narrow or discipline specific. Aware of this background this obligates the researcher to start by defining the term – ***architecture*** which has its roots in the civil/ construction engineering arena:

  > "… those properties of an artefact [sic] that are necessary and sufficient to meet its essential requirements" (Greefhorst & Proper, 2011).
  >
  > "… the fundamental organisation of a system, embodied in its components, their relationship to each other and the environment and the principles governing its design and evolution." (IEEE Std 1471-2000 and ISO/IEC 42010:2007 as cited by Rao, et al., 2019)

Three key themes can be seen from the definitions:

- A formal and structured representation of building blocks
- Unlike ‘design’ which require near complete requirements, the word ‘sufficient’ is used for architecture
- Architecture as a baseline for governance purposes

Enterprise Architecture (EA) refer to:

> “… those properties of an enterprise that are necessary and sufficient to meet its essential requirements” (Greefhorst & Proper, 2011).
>
> *“… a coherent and consistent set of principles and standards that guides enterprise design”* (Hoogervorst, 2004a, 2004b, Hoogervorst & Dietz as cited by Hoogervorst, 2018).

This will adapt the later definition of enterprise architecture by Hoogervorst to guide this effort.

The research will first discuss extant literature on Enterprise Architecture and its role in understanding enterprise design and by extension its possible use to aid the challenge of strategy execution.

2.4.3 The Role of Architecture in Understanding Enterprise Design

“The purpose of enterprise architecture is to align an enterprise to its essential requirements (Hoogervorst, 2018 p.29). Because the term ‘architecture’ is largely associated with buildings and of late (in the two decades) with IT, read closely, it should be clarified that the term encompasses what is commonly referred to as ‘conceptual design’ and /or preliminary design in the traditional engineering process (Kossiakoff, et al., 2011). It should also be noted that two other forms of architecture exist: reference architecture and solutions architecture (Hoogervorst, 2009 p.25).

- Reference Architecture: a generic architecture, based on best practices or systems with similar characteristics (Greefhorst & Proper, 2011).

- Solution Architecture: an architecture of a solution, where a solution is a system that offers a coherent set of functionalities to its environment. As such, it concerns those

properties of a solution that are necessary and sufficient to meet its essential requirements (Greefhorst & Proper, 2011).

For the three forms of architecture described above, it should be noted that "enterprise architecture targets an enterprise, while the solution architectures have only one specific solution and on the other extreme the reference architecture can operate on systems at all levels" (Hoogervorst, 2018 p,25).

It is important at this stage to also describe two important essentially similar terms that are continually reflected in this study – design principle and enterprise architecture.

- Design Principles: normative principles on the design of an artifact, declarative in nature such that they restrict design freedom (Greefhorst & Proper, 2011 p,187).

- Architecture Principles: these are foundational 'design principles' included in an architecture, declarative in nature such that they limit or govern the architecture process, affecting the development, maintenance, and use of the Enterprise Architecture to ensure an artifact meets its essential requirements. (Greefhorst & Proper, 2011; Hoogervorst, 2018; Rao, et al., 2019)

Architecture principles should be few, typically not more than 10, future-oriented, endorsed, and championed by senior management (steering committees, executive committees, management committees etc) (Greefhorst & Proper, 2011). The same authors argue that this will prevent analysis paralysis by focusing on the essence. Some authors have argued that architecture principles are the cornerstones of EA, and they bridge the gap between high-level strategic intents and concrete designs (Hoogervorst, 2009; Hoogervorst, 2018).

This study is about developing an Enterprise Engineering (EE) based Strategy Execution framework. So far, this study has revealed that EE is underpinned by two fundamental concepts – Enterprise Ontology and Enterprise Architecture. The descriptions of the two concepts have been given in the previous section. The researcher will now discuss in outline format the *role of enterprise architecture* in enterprise design and by extension strategy execution. Enterprise architecture (EA) will assist in the following,

- The regulative role of EA: this entails steering and coordination. The architecture principles fill the gap between high-level strategic intents and concrete designs and

allow for a univocal articulation of what is of fundamental importance to the organisation (Hoogervorst, 2009 p28).

- The instructive role of EA: providing motivations for fundamental design decisions. (Hoogervorst, 2009 p28). In practice that entails the that some the key execution teams will start working on delivery or development works while the final design is being finalised [the concept of early involvement as it where] and hence it can be argued that EA supports strategy execution. This is consistent with the view that architecture principles are intended to be guidelines and should be enduring – seldom amended, to inform and support organisations in the 'how' of executing strategy (Hoogervorst, 2018).
- The informative role of EA: providing a carrier of fundamental knowledge anchored on three components: (a) the 'As Is' or the baseline (that is the current understanding of the enterprise (b) the 'To Be' (the target state) and (c) a transition plan or the roadmap (Hoogervorst, 2018; (Rao, et al., 2019).
- The context role of EA: Providing "… the enterprise business context that supports the decisions about what processes, systems, and technologies should be developed or acquired to achieve the enterprise's strategic goals and objectives" (Rao, et al., 2019 p.xxxvii). In strategy execution terms, this could be viewed as the conceptual blueprint to guide the implementation models or approaches.
- The alignment role of EA: that is providing traceability or line of sight from the structural building blocks throughout the business processes to the strategy and to "… support for planners and decision-makers in aligning the processes and technical infrastructure of the enterprise with the enterprise business strategy" (Rao, et al., 2019 p.xxxvii)

Consequently, this will lead to resource prioritization and objective governance of the use of resources. Figure 2.14 below summarises the role of architecture in bridging design with strategy.

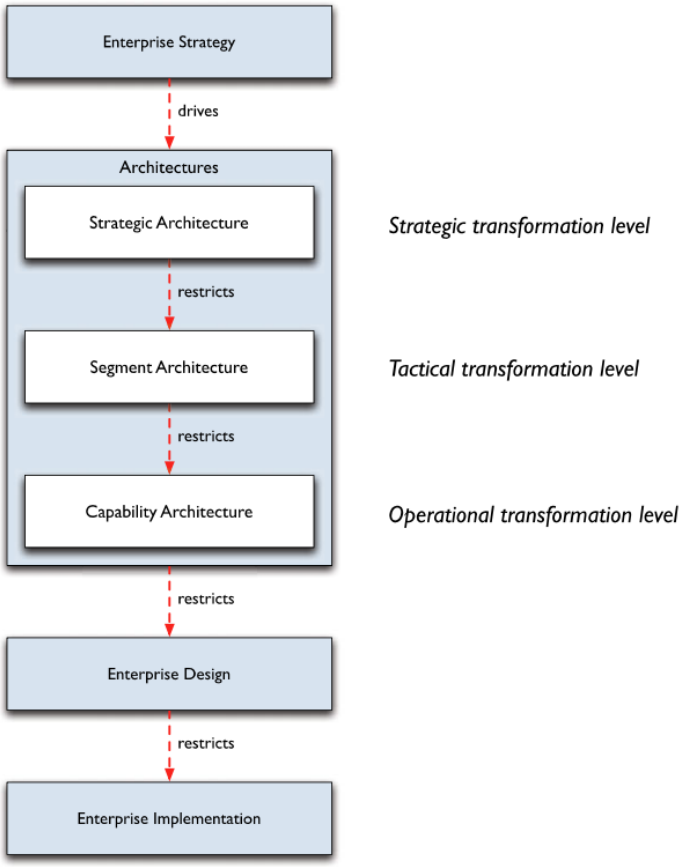


Figure 2.14: ***Architecture as a Bridge from Strategy to Design*** (Greefhorst & Proper, 2011)

The researcher will now elaborate on the other fundamental concept of Enterprise Engineering – *enterprise ontology*, put differently the nature of Enterprise Engineering.

2.4.4 The Advent of Enterprise Engineering

To understand and appreciate the importance of the emerging field of Enterprise Engineering (EE) it is key to reflect on the history of its advent and define or provide a working definition of the discipline. It is also important to explore the context and level(s) of which the enterprise(s) operate.

Enterprise Engineering elements emerged from industrial engineering and the early adoption of the principles was in software engineering in the second decade of the 21st century. Industrial engineering traditionally focused on the shop-floor level in 1900s during the time of Fredrick W. Taylor's scientific management as the world was transitioning from an agrarian economy to a production economy. In the 1950s as production increased the scope broadened to include manufacturing processes focusing on process improvement using tools and techniques like

statistical process control. As the manufacturing systems became more complex in the 1980s, the world saw the introduction of numerical control systems leading to CIM (Computer Integrated Manufacturing) and robotics to an extent removing the dependence on the human element. The late 1990s and early 2000s saw the addition of complex enterprise-wide systems – to better manage enterprise planning and materials management (ERP and MRP systems). These systems also took care of the end-to-end supply chain and logistics processes. Although the roots of the term systems engineering date back to Bell Telephone Laboratories in the early 1940s, the early 1990s was when systems engineering (SE) saw wide acceptance of it as a discipline. Wherein SE has been generally described as an interdisciplinary approach and means to enable the realization of successful systems targeting the engineering of a system of interest (SoI) but considering the bigger (wider) systems (INCOSE, 2017). In the late 2000s, the systems engineers went further to apply systems engineering on enterprise-wide projects – hence the advent of the term or knowledge area – Enterprise System Engineering (ESE). This - ESE focused and still focuses on the engineering of enterprise-wide projects or products (Giachetti et al, 2004; Jan & Jan, 2013; INCOSE, 2017).

The conceptualisation of organisations as both a system of systems (SoS) and as an artifact led to the idea that enterprises "…could be analysed, designed, and managed using engineering principles and methodologies and consequently led to the recent emergence of enterprise engineering as a research field (Fernandes & Tribolet, 2021 p320).

Against this background, the past decade has shown the strong emergence and appreciation of EE as a discipline. Put simply for the sake of framing the discussion, Enterprise Engineering (EE) can be defined as the engineering process applied to enterprises (Alba et al., 2004; Dietz & Hoogervorst, 2013, Dietz & Hoogervorst, 2015; Fernandes & Tribolet, 2021). Wherein an engineering process irrespective of discipline entails studying (or unpacking) the underlying structure and establishing design requirements before pursuing downstream processes which include but are not limited to feasibility study; conceptulisation; preliminary design; detailed design; production or product/ intervention launch. Janssen (2016) describes EE as a discipline that analyses organisations at the elementary level before prescribing a solution or intervention. This suggests EE to be an important subject in the search for sustainable solutions and therefore it is imperative that the epistemology of enterprises be reflected on. (Rouse & Pennock, 2016) defines *enterprises* as goal-directed organisation of resources – human, information, financial, physical and activities, usually of significant operational scope, complication, risk, and

duration. Put differently enterprises can be described as establishments that allow work to be undertaken - and 'the how work gets done' (Bossidy et al, 2002, 2009) is execution.

2.4.5 Theoretical Foundations of Enterprise Engineering

Enterprise Engineering (EE) is a relatively new discipline that represents a paradigm shift in the way organisations are viewed. This has allowed substantial contribution to the theory of organisational design (Dietz, 2006; Dietz & Hoogervorst, 2013; De Vries, 2016; Janssen, 2016; Lapalme, 2017). As explained in prior sections EE is based on three important scientific theories (ibid):

- *Systems Thinking as the Reference Framework* – uncovering the hidden connections and showing how the elements in a system influence each other. This also extends to understanding how the elements are or can be connected to the environment
- *An Organisation as a Social-technical System* – wherein communication is essential as a means of affording and fostering cooperation; and understanding the processes used to communicate in the System of Interest (SoI).
- *Communication and Language as the Thread of the Organisation* – since organisations are a system of human beings (actors and stakeholders) with a particular purpose who require to communicate in order to cooperate – it matters what language is used and how it used in the organisation or SoI.

Much of the research efforts – ontological and epistemological foundations on EE have been further developed and driven by two organisational theorists Jan L. G. Dietz from the Delft University of Technology and Jan A. P Hoogervorst from Antwerp Management School in Belgium. The two authorities founded the CIAO! Enterprise Engineering Network (CEEN), which is a community of academics and practitioners who strive to contribute to the development of enterprise engineering and apply it in practice. At this juncture it is important to state they are roughly eleven (11) theories of EE developed so (Dietz & Hoogervorst, 2015; Dietz & Mulder, 2020) and the applicable theories for this study will be explained in the subsequent sections.

- *FI Theory - EE Information Theory*
- *MU Theory – EE Model Theory*
- *TAO Theory – Function - Construction Theory*

- *PSI Theory - EE Organisation Operation Theory*
- *DELTA Theory - EE System Theory*
- *OMEGA Theory - EE Organisational Construction Theory*
- *ALPHA Theory - EE Organisational Essence Theory*
- *BETA Theory – EE Organisational Design Theory*
- *IOTA Theory – EE Organisational Implementation Theory*
- *NU Theory – EE Organisational Normalisation Theory*
- *SIGMA Theory - The EE Governance and Management Theory*

A proposition is made to classify these theories in a hierarchy, wherein philosophical theories make the foundation of all the others and ontological theories are the basis of both technological and ideological theories (ibid). The enhanced theory classification outline is presented in Figure 2.11 below.

This study as explained in the next sections will centre on three (3) key theories that are useful to understand and aid strategy execution: (a) the EE function – construction theory; (b) the EE organisation theory and (c) the EE system theory. The systems theory has been reflected on in previous sections and further interrogation will not be useful in this work, as such in-depth theory of systems is out of the scope of this study. It follows, the researcher will focus on understanding the organisational theory especially the construction of an enterprise at the ontological (the core) layer of an enterprise as depicted in the middle block in Figure 2.15.

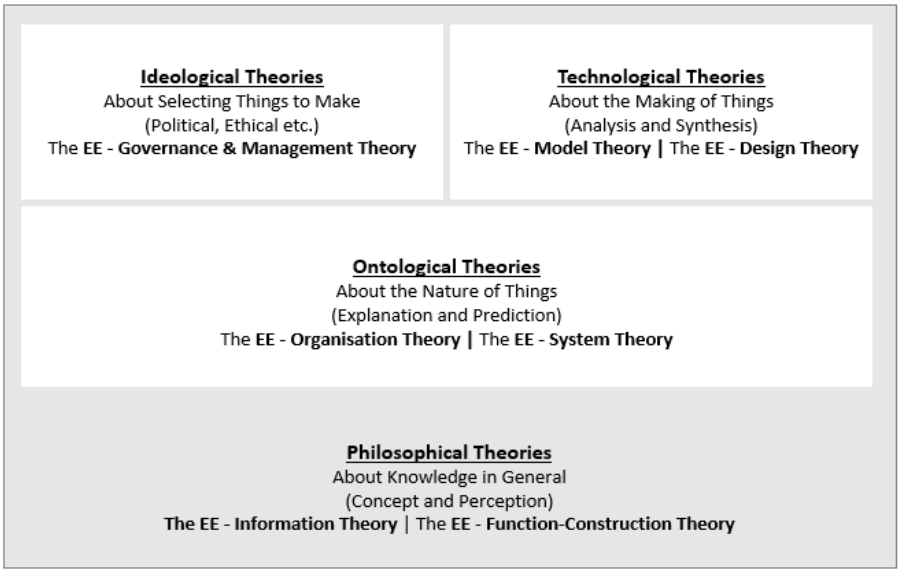


Figure 2.15: ***Theory Classification Scheme with EE Theories*** *adopted from* (Dietz & Hoogervorst, 2015)

The focus on the ontological theory is motivated by the notion that such theory of the nature of things is concerned with cause-effect relationships in systems and these relationships must be able to explain observed behaviour, as well as predict behaviour to an extent (Dietz & Hoogervorst, 2013). In practice in the context of this study, this means that if one understands enterprises (as a social technological system), they are in a better position to predict and enhance influence behaviour. But to do that the enterprise engineer has to operate at the DNA level of the organisation (the deepest layer).

According to (Dietz & Hoogervorst, 2013; Janssen, 2016; Pennock & Rouse, 2016) four (4) common arguments from advocates of EE stand out.

i. ***The Need of a <u>Paradigm Shift</u> in the way Organisations are Viewed*** – 'the white box view'. Organisations have traditionally been viewed as a 'black box' (Dietz & Hoogervorst, 2013). The metaphor of the black box relates to… typifying a system that is known: the exterior is visible, but nothing much more than that. Something goes in and something comes out, but what actually goes on in a system is unknown, as it is invisible. This is probably the main reason why there are so many different views of organisations (Janssen, 2016). EE advocates and is about finding the construction elements inside the "Black Box".

ii. ***An Organisation as a <u>Goal-searching Complex Social-technical System</u>*** – has a purpose (or is goal oriented, that is, it is intended to provide some function or service. Organisations house enterprise systems. Enterprise systems exist on the boundary where the technical meets the social; and they encompass both engineered and social components (Pennock & Rouse, 2016). (ibid) argue that it is the social component that complicates the application of traditional engineering approaches. As such enterprises are <u>organised</u> complexities (Dietz & Hoogervorst, 2013).

iii. ***Enterprise <u>Design</u> Requirement*** - *an enterprise is an <u>intentionally</u> created cooperative of human beings with a certain societal purpose* (Pennock & Rouse, 2016) implying the **design** element is critical and this allows the notion that action can be aimed at changing existing (enterprise) situations into the preferred one. The focus on design has enormous practical applications and is associated directly with strategic and operational enterprise success (Dietz & Hoogervorst, 2013). As such, it is key that organisational design is considered in framing strategy execution.

iv. <u>Communication</u> as a Necessary and Sufficient Basis to Develop Theory

EE represents the paradigm shift from an information-centric to a communication centric view. In EE, Communication is defined as the sharing of thoughts, and information as the means for communication (Dietz & Hoogervorst, 2015). The enterprise functions are based on the defined rules of communication (ibid). These rules are applied even at the deepest layer of the organisation. To reveal this deepest layer, the cooperation within the organisation has to be analysed. Cooperation is what makes an enterprise and organisations (Janssen, 2016). such cooperation is achieved through communication (ibid). In the natural world, the referred cooperation includes, how people communicate and share information including agreements people enter (written or otherwise).

To better understand EE the researcher structured the literature on this emerging domain in eight (8) sub-sections:

- Underlying Assumptions of the Theory of EE
- An Organisation as a Social Technical System (a Coherent Whole)
- Communication Centred View of an Organisation
- A Paradigm shift: from 'Black Box' to 'White Box' Thinking
- Construction & Operation of the Enterprise at the Ontological Layer
- The Terminology of Enterprise Engineering
- Elementary Construction Flaws
- Enterprise Engineering in Practice (the Scope & Approach)

<u>Underlying Assumptions of the Theory of EE</u>

Below are some assumptions synthesized from extant literature on EE.

1. To better understand an organisation (a holistic complex social-technical system), attempts should be made to view and treat an organisation as an artifact just like any engineered or physical system.
2. Transactions (also described as *interaction patterns and commitments among actors*) are essential building blocks in an enterprise.
3. The construction and operation model of an enterprise at the deepest layer (the ontological level) drive behaviour and consequently the ways of work of the entity under analysis.

4. Because an enterprise is a *complex* social-technical systems, it has design components that which all its subsequent building blocks (the sub-systems) are anchored on even though those sub-systems have attributes different from the main systems (the enterprise).
5. Every organisation has systematic aspects and characteristics that are dynamic which transform over time – however an organisation has core elements that it preserves over time: that is its identity, coherence, and integrity.

Put differently, the above assumptions aim to bring transparency (expose the wiring diagram of organisations) to the makeup and unintentionally designed behaviour of Complex Social Technical Systems.

An Organisation as a Complex Social-Technical System (a Coherent Whole)

Consistent with Peter Senge's insights this study submits that any approach to resolving organisational challenges should be anchored on Systems Thinking. Systems Thinking has been defined variously in literature suffice for this work is its appreciation of looking at the system of interest (SoI) in relation to its environment, its dynamics and interconnectedness with other systems. An organisation has been described as a "… technical-social system whose uniqueness is having human beings in its constitution. That is, agents endowed with intelligence, conscience, autonomy, and self-will" (Fernandes & Tribolet, 2021 p323). This human element in organisations introduces complexity as complex systems evolve through adaptation, cooperation, and competition – in addition, they have flexibility to communicate and adapt (Sheard, 2006).

Social systems are by nature complex (Pennock & Rouse, 2016) and organisations are organised complexities (Dietz & Hoogervorst, 2015). Put in another way, organisations exist because different people make arrangements with each other and work together in a formalised way to fulfil a specific purpose. Contrary to an organisation as a complex socio-technical system, in purely technical systems, elements that form the system have no choice but to work together (Janssen, 2016). This working together requires collaboration, information exchange and rules or some governance structures. As such, *communication* is central to the cooperation of actors in an organisation/ enterprise. An enterprise is considered an information and material processing *system of systems* interacting with its environment through a permeable boundary (Bernus, et al., 2015). It follows then that "… to thoroughly understand a social system, one

has to look at the *way of communication* and the processes used for this communication. It can therefore be argued that to implement any strategic initiative in an organisation the way communication is structured is critical.

Communication Centred View of an Organisation

Executives in most organisations focus on getting the right information to make decisions. This information comes in different formats, many a time tailored for quick interpretation showing only the perceived important insights. This information could be real-time or via what are commonly referred to as executive dashboards summarizing information for specific periods. It follows information is critical in organisations. "Information is the result of collecting and organising data in a way that establishes relationships between data elements" (Loshin, 2003 p.4). Data itself refers to an elementary description of things, events, activities, and transactions that are recorded, classified, and stored, but not organised to convey any specific meaning. As such the data items can be numeric alphabetic, figures, sounds, or images (Rao, et al., 2019 p.524). Knowledge in this context entails using information based on recognised patterns in a way that provides insights into information (Loshin, 2003 p.7). The relation among the three elements, 'data', 'information', and knowledge and intelligence (that which the decision makers seek) is depicted in Figure 2.16, below.

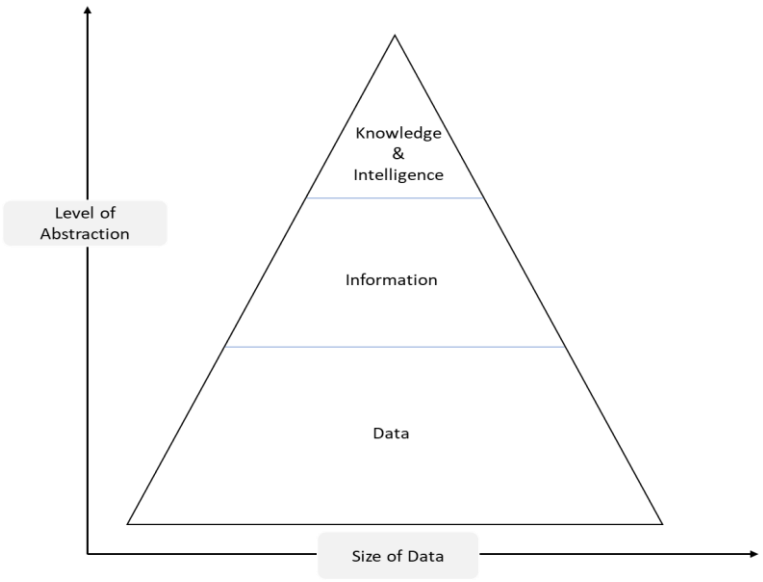


Figure 2.16: ***Pyramid of Abstraction*** (Loshin, 2003)

What this pyramid does not tell is how the information is shared. At this point it is therefore necessary to understand what communication entails. "Communication is defined as the sharing of thoughts between subjects (human beings)" (Fernandes & Tribolet, 2021 p.321). In prior sections it has been explained that at the core of the notion of organisations are 'human beings' and these 'human beings' have a particular purpose or mission. These 'human beings' have to communicate to achieve the purpose or mission. It follows enterprise engineering assumes that communication between 'human beings' in organisations constitutes a necessary and sufficient basis for developing a theory of organisations (Dietz, 2002; Dietz & Hoogervorst, 2015).

Consistent with the enterprise engineering notion of a paradigm shift from an information centric to communication-centric perspective, this study submits that the way people communicate, and the language used in interaction patterns, making commitments among actors is important. From an enterprise engineer's perspective, this then forces "… the focus of organisational design to shift from processes and resources to transactions i.e., the *interaction patterns and commitments among actors"* (Fernandes & Tribolet, 2021).

To this point, extant literature has revealed that an organisation is a system of systems, in fact a complex socio-technical system that functions based on defined rules of communication relayed in a tailored way specific to time and audience using a specific language. What enterprise engineering brings to the world of organisational theory is the notion that this system "the organisation / enterprise" has a construction that, contrary to what has always been thought, can be made transparent (Janssen, 2016).

A Paradigm shift: from 'Black Box' to 'White Box' Thinking

In organisations problems are traditionally addressed from a perspective of what the system is supposed to deliver. In other words, answering the questions related to why a system *canno*t perform as expected based on the function and behaviour of the system (the system of interest). (Dietz, 2008) calls this functional perspective – 'teleological'. The word 'teleological has roots from the Greek word 'teleos' referring to the end goal or purpose (Hoogervorst, 2009). The challenge with this teleological perspective is that does not focus on the enterprise design to understand what is driving the malfunctioning but rather emphasises management intervention and putting in place control measures to enhance system performance. Hence this perspective is referred to as the '*black box*' view of organisations. (Fernandes & Tribolet, 2021) argue that

although such management interventions and organisational performance control systems are sufficient for managing an enterprise, they are inadequate for strategic change initiatives in an organisation – strategy execution. The same authors posit that "… in order to change enterprises in a systematic and controlled manner, *white box* - based knowledge is needed – that is the knowledge concerning the construction and the operation of enterprises" (ibid, p.321) at the deepest layer (the ontological layer). Within this 'white box' perspective attention is given to what the system is, that is the essential characteristics of its existence (Dietz & Hoogervorst, 2015). It should be noted that the word ontological comes from the Greek word 'ontos' which refers to the essence of things (nature then) and their 'being' (Dietz, 2006). It should also be noted that the *functional or teleological* perspective is called the 'black box' as it does not seek to understand the construction and operation of the enterprise as the essence layer – the ontological layer (the deepest level in an enterprise). Figure 2.17 illustrates the two perspectives.

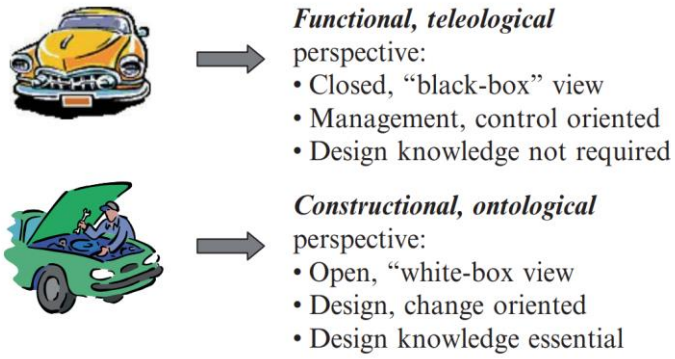


Figure 2.17: ***Two Fundamental Systems Perspectives*** (Hoogervorst, 2009)

The importance of the 'white box' or the ontological perspective is summarised by (Fernandes & Tribolet, 2021 p.321) when they declared that the relationship of the 'construction and operation of an enterprise' with 'function and behaviour' of the system under study is brought about by its construction and the operation - through this exhibiting of behaviour, the function of the system is realised. It, therefore, follows that to reveal this 'construction' at the deepest level of the organisation, the cooperation (the way agreements are made) within the organisation has to be analysed. However, before that, it is equally important to reflect on the theoretical footing that underpins the enterprise engineering methodology.

It should be highlighted therefore that it is important to differentiate between *'function'* (the teleological perspective) and *'construction'* (the ontological perspective) respectively called

‘its business’ and ‘its organisation’ (Dietz, 2006). The functional view is concerned with the purpose of the system and therefore relationships with its environment (Dietz & Hoogervorst, 2015). The environment in this context means externals to the system of interest (the enterprise) – this includes relationships with customers, suppliers, business partners etcetera. Put plainly the functional perspective is about what the enterprise delivers to the environment (ibid). In practice this includes, for example, developing user friendly platforms for the customer or supplier engagement. On the contrary, the *constructional perspective* is concerned with the system arrangement, that is, concerned with the internal subsystems or components, and their relationships, for realising the enterprise function (Hoogervorst, n.d.). Put directly, how the products and services are produced (ibid). Because it focuses on the system’s ‘internals’ – it is referred to as the ‘white box perspective’.

This study focuses on analysing the wiring diagram of the organisation at the deepest layer to understand and influence strategy execution. It is therefore fitting to reflect on the *cooperation* levels in organisations. As stated earlier such cooperation is achieved through communication. As such to understand cooperation there is need to …

a. know how people communicate
b. know what information is being shared
c. the timing or when that information is shared
d. know the level at which the information is being communicated (that is the cooperation levels in organisations)

2.4.6 Cooperation Levels in Organisations

There are three (3) basic levels at which communication and information exchange take place in organisations These are a) Datalogical; Infological and Ontological as shown in Figure 2.18 below (Dietz, 2006; Hoogervorst, 2009; Janssen, 2016):

- *Ontological level* also referred to as the deepest layer represents the ‘essence’ or the fundamentally important level. That is the level were commitments are made (agreements are made and transactions initiated). This level reveals the deep structure of the organisation that is more stable over the life cycle of the business (Gonçalves, et al., 2013).

- *Infological level* has to do with the content of the information. The information that is critical to performing coordination and production activities is agreed upon at the ontological layer. It follows that the Infological layers is subordinate to the ontological layer. By knowing the content (the information itself), a decision can then be made for example to classify the information and share it with a certain group, for example company reports are not published in newspapers. It can therefore be argued that this level of cooperation cannot be the essence of the enterprise.
- *Datalogical level* also referred to as the 'document level' concerns activities dealing with the transmission, transformation, or storage of data. It is about the carrier rather than the data itself. It also follows that this layer is subordinate to the Infological layer and the Ontological layer. Information carriers play a role in agreements as they support communication. These information careers include – minutes, emails, oral messages, reports etcetera. It is also apparent that this level cannot be the essence of the organisation as it depends on the Infological and Ontological levels. Refer to Figure 2.18

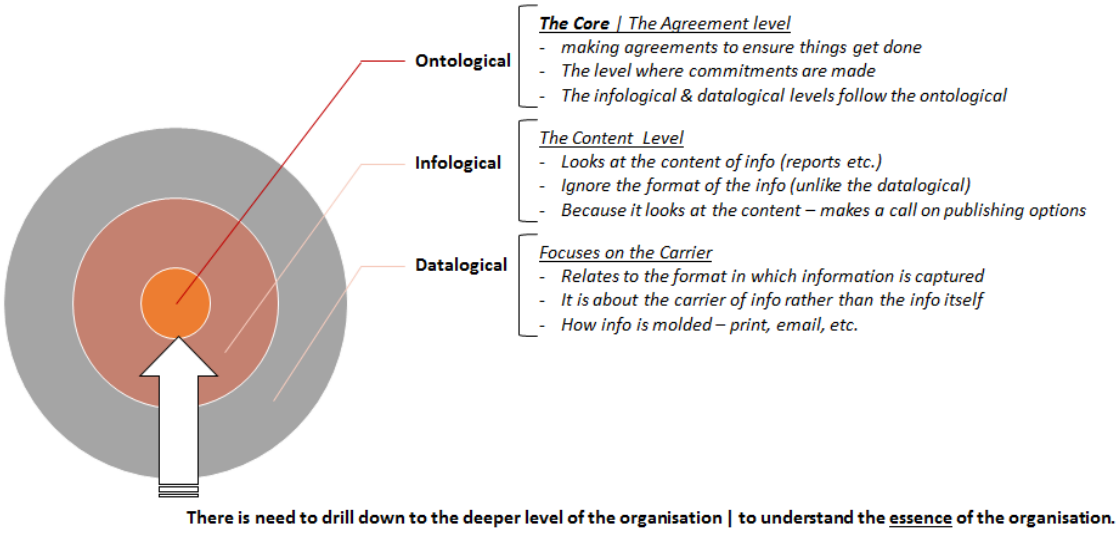


Figure 2.18: ***Cooperation Levels in Organisations*** *(authors own elaboration, with insights synthesised from* (Dietz, 2006; Hoogervorst, 2009; Janssen, 2016):

It has been shown above that Infological and Datalogical outputs (production) are all derived from earlier decisions at the deepest layer and on the contrary ontological output (production) is original and not derivable from other facts. It follows to understand and sustain strategy execution this study focuses on the analysis of enterprises at the ontological level in an organisation to reveal the 'essence'.

It is also important to reiterate that, *cooperation* is a fundamental pillar of enterprise engineering. This research effort therefore focuses on unpacking the DNA of an enterprise cognisant of the proposition that "…cooperation always takes place in the same way, regardless of the sector the organisation operates in" (Janssen p.19). This study does not discount the various efforts in addressing the strategy execution challenges but posits that a deeper explanatory theory is required to give experience and best practice meaning to provide the basis for objectively understanding enterprises.

In practice cooperation in enterprises is about making agreements and decisions to transact. Several types of agreements are found in business. These include signed or unsigned, broadly - commercial agreements (procurement agreements, lease agreements, customer agreements, service level agreements etc.); arrangements, and employment agreements to mention a few. At this point, it is fitting to differentiate between an 'agreement' and a 'contract'. To avoid digressing into the pedagogy of Commercial Law, which is out of the scope of study, an agreement in the enterprise engineering realm results from a proposal from a party or several parties that is accepted by one or several parties resulting in a transaction. A critical requirement is that there must be an intention (a proposal) made, which is then accepted (PMI, 2017). Hence verbal arrangements pass the test and as such how actors communicate matters in business. On the contrary a contract is a mutually binding agreement that obligates the seller (one who proposes) to provide the specified product or service (of offering) and obligates the buyer (the one who accepts the proposal) to buy (ibid). For organisations both agreement and contracts are critical commitments for the success of the enterprise, and these are both made at the ontological layer. In this study agreements encompass both the 'agreement' as described above and 'contracts', binding as they are using one common term - *arrangements*. (Janssen, 2016 p.29) clarifies "… the construction of an organisation is made up of all arrangements (agreements / transactions (together with their patterns and interrelationships). The agreements as described and per the example given in the previous sections, together with the patterns and interrelationships constitute the organisations construction.

This leads the researcher to further interrogate the referred-to concept of transactions as building blocks of an organisation.

2.4.7 The Basic Transaction Pattern

Transactions are essential building blocks of an enterprise (Fernandes & Tribolet, 2021 p.321). It is also important to reiterate that the ontological level in organisations is made up of transactions and actor roles (i.e. parties of the organisation who have specific responsibility to perform one or more activities for either party). To understand theory in enterprise engineering it is required to get the basics right. Key terms that repeat in all the models and are foundational in transactions include.

- Actors and Actors Roles (including elementary actor role)
- Production Acts and Coordination Acts
- Initiator and Executor

These terms are best explained via a practical example that signifies a typical standard business transaction for example buying a car:

i. Person A asks (orders/ requests) to buy a car from person B (*Actor Role B*)
ii. Person B asks (promises/ refuses) to sell a car to person A (*Actor Role A*)
iii. Person B activates his organisation to meet this promise (that is, performs the state and offers the car) to person A. This is called the *elementary act of production (production act),* and it corresponds to a 'change of state of the resource'.
iv. Person B presents the result or the production actor whatever was asked for (in this case the car) to Person A
v. Person A accepts (or rejects) the result (in this case the car) delivered or produced by person B.

Note that person A and B are human actors. Wherein person A is an *initiator* of this transaction and person B is an *executor* of this transaction respectively. The *coordination acts* in this transaction are summarised below:

- *Initiator: makes a request*
- *Executor: promises or declines to transact*
- *Executor: performs the state and offers the product or service asked for*
- *Initiator: accepts or rejects*

To ensure the theory is captured correctly key terms highlighted in blue and brown are explained.

- Actor Role: this term describes an actor in his or her role such as a requestor (for example a customer) or an executor (for example a producer) who starts or fulfils a transaction, ideally the one who has the authority, responsibility and competence to perform the requesting or executing role (Dietz, 2006; Janssen, 2016).

- Initiator: a role of an actor in a transaction who has the authority to start a transaction and is responsible for performing the corresponding *coordination acts* according to the transaction pattern (Dietz, 2006).

- Executor: a role of an actor in a transaction who has the authority to execute a transaction and is responsible for performing the corresponding *productions acts* according to the transaction pattern (Dietz, 2006).

- Coordination Act: this term describes an act by which coordination result is created wherein the actor who performs the act is a performer and the one to which the act is addressed is the addressee (Dietz, 2006). It should be noted that to perform a coordination act, several communicative acts have to be done (ibid).

- Production Act: this term describes the act in a transaction by which the 'executor' establishes the production result or produces something intended by the requester or 'initiator' (Dietz, 2006; Fernandes & Tribolet, 2021).

To understand the modelling notations in enterprise engineering, it is important for this study to also clarify the 'people element' and the importance of seeing the organisation beyond the people including department functions and /or processes (that is penetrating deeper into the core of an enterprise – from *function* to *elementary actor role*).

- Elementary Actor Role: is a single role with the *authority, responsibility,* and *competence* of an executor of a transaction type (Dietz, 2006), while a …
- Composite Actor Role: is a role that consists of several actor roles (Janssen, 2016)

Put differently an elementary role is not divisible and refers to a minimum combination of the three elements (responsibilities, authorities, and competencies) necessary to deliver a product.

As such, organisations can be argued to be a complex set of composite and elementary actors' roles that cooperate through specific patterns to achieve an overall purpose (ibid). Janssen, (2016) goes on to further outline the minimum requirements for fulfilling an elementary actor role.

1. ***Responsibility*** *– the employee or resource given an elementary actor role should be willing and motivated to meet this responsibility.*
2. ***Authority*** *– the employee or resource must have the mandate and be empowered (or capacitated) to transact.*
3. ***Competencies*** *– the employee or resource must be capable (including being available) and have the relevant skills to execute the role required (be it a production act or a coordination act) .*

The author concludes by claiming that should any of these elements (responsibility, authority or competence) of the elementary role is missing or lacking the organisation is likely to face challenges of delivery.

Based on this background 'transactions' in this context therefore means the way agreements are brought about (the method of cooperation) and actors in particular *elementary actor roles* are critical in this cooperation. Dietz (2006) as cited by Fernandes & Tribolet, 2021 define a 'transaction' as "a sequence of acts (interaction patterns and commitments) that follow a path [*more precisely a trajectory*] comprising of three basics phases: the *order phase* (O-phase); the execution phase (E-phase) and the result phase (R-phase). In common language these are agreements or rather cooperation arrangements between Actors in the organisational process.

Figure 2.19 below summarises the basic or elementary transaction pattern at the ontological layer.

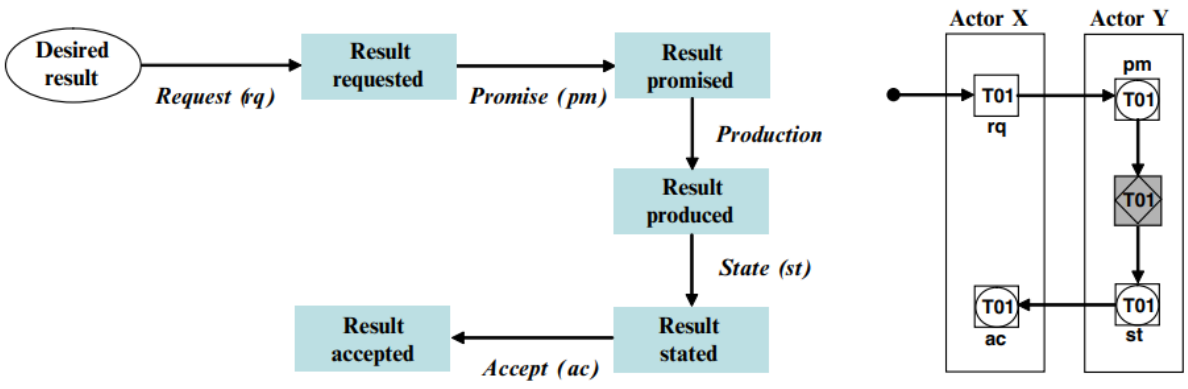


Figure 2.19: ***Elementary Ontological Transaction (EOT) Pattern*** *(adopted form Hoogervorst, 2009)*

It should be noted that enterprises fulfil actor roles with two types of activities (a) production activities and (b) coordination activities. The production activities may produce a material

result (e.g. a product) or a result (e.g. a judgement in a court of law). On the other hand, coordination activities entail activities that have communicative actions as shown in figure 2.15 above which are key to getting into commitments about production activities (Hoogervorst, 2009; Janssen, 2016). Four coordination activities are shown in figure 2.15, these are: *request, promise, state and accept,* and these are illustrated below.

- Actor X – starts a transaction with a *request* (this could be a customer)
- Actor Y –agrees to fulfil that request and makes a *promise* (this could be a supplier)
    - Thereafter the production takes place (for example a supplier makes the product)
- Actor Y – *states* that the product is ready and offers it to Actor X
- Actor X – completes the transaction by *accepting* the offer from Actor Y

Reflecting on the above assertions, put differently transaction is therefore the complete path (trajectory) to these steps shown in figure 2.15. The word 'trajectory' is preferred as transactions (including strategic execution initiatives) faces several influences - endogenous and /or exogenous forces (Trafford & Boggis, 2017) thereby altering the path to the desired destination. It follows each business transaction is a collection of dealings linked together in different phases of the acts of coordination (Gonçalves, et al., 2013).

2.4.8 Modelling of an Organisation the Enterprise at Ontological Layer

Modelling at the ontological layer starts with understanding the basics transaction notation as shown in Figure 2.16. As shown below, there are two actors (actor A and actor B) and a transaction (T1) with the transaction pattern showing the three phases explained earlier (a) the *Order Phase* ['request' and 'promise'] (b) the *Production Phase* where the material or immaterial production takes place (c) the *Result Phase* ['state' and 'accept'].

The circle containing the diamond is the transaction symbol. The circle in this view represents the four coordinating activities of the transaction ['request'; 'promise; 'state' and 'accept']. The diamond represents the product or result. The small diamond shape or a small square on actor role B boundary indicates the actor role (composite or elementary) that 'promises' or takes care of the execution of the transaction (Janssen, 2016).

A01 and A02 denotes the actor roles of the transaction initiator and executor respectively.

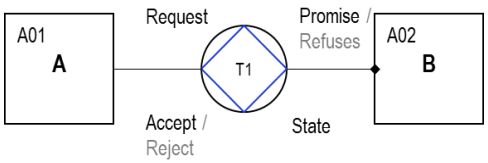


Figure 2.20: ***The Concise Notation of a Transaction*** *(elements adopted from Dietz, 2008, Hoogervorst, 2009; Janssen, 2016).*

Further to the above notation, it is also important for an enterprise engineer to define the limits of the investigation for example, the scope being analysed might only cover a specific department or sub-division and that is ordinarily referred to as a system of interest boundary. This will assist in making the study feasible rather than focusing on the whole organisation (Janssen, 2016). In addition to the transaction with the notation shown above (figure 2.20) there are other important notations. One of which is the *information bank*, especially in this era where data is everything. The *information bank* refers to information that is necessary to enable the carrying out of a transaction (ibid). In other words, the information or communicative facts required for the coordination activities (request, promise, state and accept) e.g., client information is contained in the *coordination bank*. In the same manner the production facts - the result is contained in the *production bank*. Also important is to show the symbol of the composite actor role (that is a role that consists of several actor roles). Note that an elementary actor role only performs one transaction, and external actors are commonly referred to as composite actor roles as there is generally not much information about the external actors (Hoogervorst, 2009).

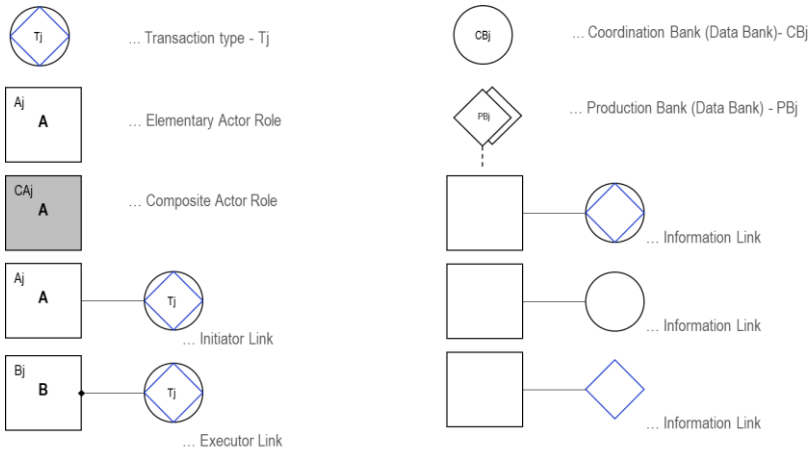


Figure 2.21: ***Key Symbols in Modelling Organisations*** *(elements adopted from Dietz, 2008, Hoogervorst, 2009; Janssen, 2016).*

Figure 2.22, below shows a typical interaction model in organisations

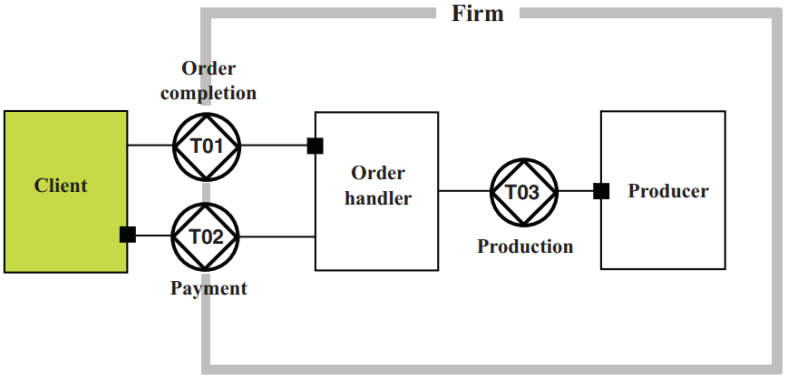


Figure 2.22: ***Typical Interaction Model in an Organisation*** *(adopted from Hoogervorst, 2009)*

Four key models are critical to expose the ontological knowledge and give the complete picture of the enterprise at the ontological level such that the knowledge is accessible and manageable (Dietz & Hoogervorst, 2013; Janssen, 2016). These are,

- **Construction Model** (CM) - *show all transactions that take place and how they relate*
- **Process Model** (PM)- *the (business) processes in an organisation*
- **Action Model** (AM) - *serves to check the completeness of the Construction Model*
- **Fact Model** (FM) - *serves to check the accuracy of the Construction Model*

The relationship between these aspect models is shown in figure 2.23 below,

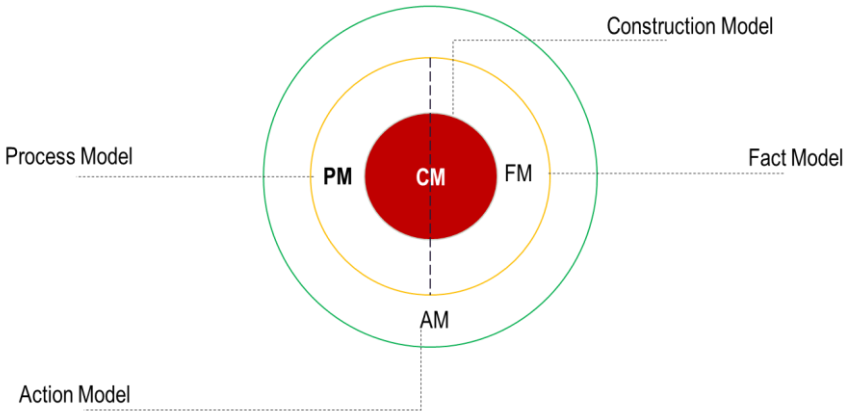


Figure 2.23: ***The Ontological Aspect Models*** *(elements adopted from Dietz, 2006 and Janssen, 2016)*

These four (4) aspect models form the 'essence' of the organisation with the Construction Model forming the core of the essence, as succinctly summarised by (Janssen, 2016 p.21), "… once this construction has been found, the organisation is like a 'white box': the construction of an organisation is exposed just like as the construction of a car is visible once the hood is opened" It follows an enterprise engineer can uncover the elementary (the deepest possible) construction flaws of an organisation just by modelling the "As Is" Construction Model (ibid). These flaws are caused by elementary actor roles and the transactions between them and therefore form the true root cause of the problems (Janssen, 2016). This study seeks to study enterprises at the core (the deepest level) to understand and design /re-design models to enable strategy execution. With this end in mind and knowing that 'process optimisation' has been a catchword in industry at least for the past two decades it is correct and important to expand on the differences between the *process model* and the *construction model.*

Construction Model (CM)

The term construction – generally implies how things are structured or built – put differently the 'nature' of things. The CM model specifies the *transaction types*; the associated *actor roles* and *information links* (that is both the production banks and coordination banks) as shown in Figure 2.21 (Key Symbols in Modelling Organisations) (Dietz, 2006). In other words, "… the construction model shows all transactions that take place, how they relate to each other, which actor roles are involved and the environment in which these are initiated" (Janssen, 2016 p.35). To understand an organisation an enterprise engineer looks deeper and should completely strip the Infological and Datalogical aspects as presented in Figure 2.23 so that the core – the most elementary cooperation aspects are exposed (ibid). Hence this model is the most concise and the deepest.

Process Model (PM)

A process is generally described as a series of steps, activities or things done to achieve a desired outcome or a particular result. The referred to things could be composite or elementary and these 'things' could be a series of transactions. Unlike the Construction Model that does not order transactions, a Process Model (PM) places transactions in a specific order (Janssen, 2016). The Process Model of an enterprise is a specification of the *state* (how the result {of an agreement or arrangement} is or is to be produced) and the transition of the C-World (that is the *coordination world*) (Dietz, 2006). In practice intention (request for proposal) and a

proposition (a bidder's proposals) are typical common coordination acts. By way of an example - a business arranges and signs a deal with a relevant department in national government to sell platinum ore abroad. Upon signing the applicable framework agreements (construction model) the relevant directorate instructs the relevant actors in the respective departments to map out a series of steps (process model) to achieve the desired result (export of ore). Consequently, the Process Model follows the construction model.

A Case for the Construction Model

Visibility of the construction (the construction model) of an organisation at the ontological level is important for various reasons as outlined below.

- It shows the transactions (at least the main transactions) in an organisation or systems of interest – for example a department under study (Dietz & Hoogervorst, 2013)
- 'Processes' are derived from the 'construction' not the other way round - for example the construction of a car determines if the steering will be on the right or left (Janssen, 2016)
- It reveals key actor roles in transactions and by extension forms the basis of job descriptions – that function description of actor roles and therefore organisational functions (Janssen, 2016). It should be noted that no explicit case has been found in literature where the Human Resource function uses the construction model as the primary source to create role descriptions. It should also be highlighted that role clarity is essential for successful Strategy Execution (Bossidy, et al., 2011; PMI, 2021)
- 'Structure' (the organogram for the various organisation functions) follows from its construction – the same way 'strategy determines structure'. Janssen (2016) gives an illustration of a scenario wherein it is found that there are too many transactions between departments in an organisation which compels the leadership to question whether it would not be more convenient to merge the departments.
- It also helps determine which transactions require ICT support and which processes can be candidates for automation with information banks being part of the integrated ICT solution (Janssen, 2016).
- Lastly, it reveals the construction flaws (that is the basic errors in the construction of an organisation).

At their most elementary level organisations consists of actor roles (elementary actor roles) and transactions that are connected by way of a universal pattern – that which is referred to as the *construction of the organisation* (Janssen, 2016). The same authority argues that the root causes of challenges in organisations can be revealed by checking for twenty-two (22) errors (ibid).

It follows the next section will analyse these elementary flaws (errors) in the construction model of an organisation. The word elementary implies that these errors take place at the lowest possible level. Figure 2.24 below shows a typical construction model which will be useful to reflect on while deliberating on the referred to errors or elementary construction flaws ECFs).

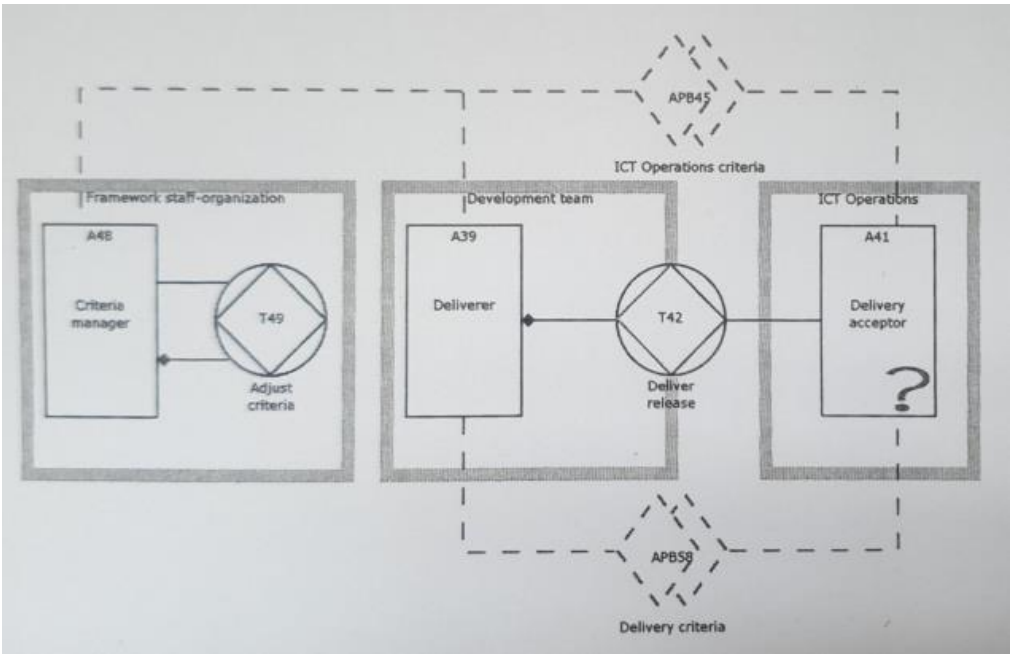


Figure 2.24: ***'As Is' Delivery Construction Model – from Development to ICT Operations with ECFs*** *(Extracted from Janssen, 2016 p.97)*

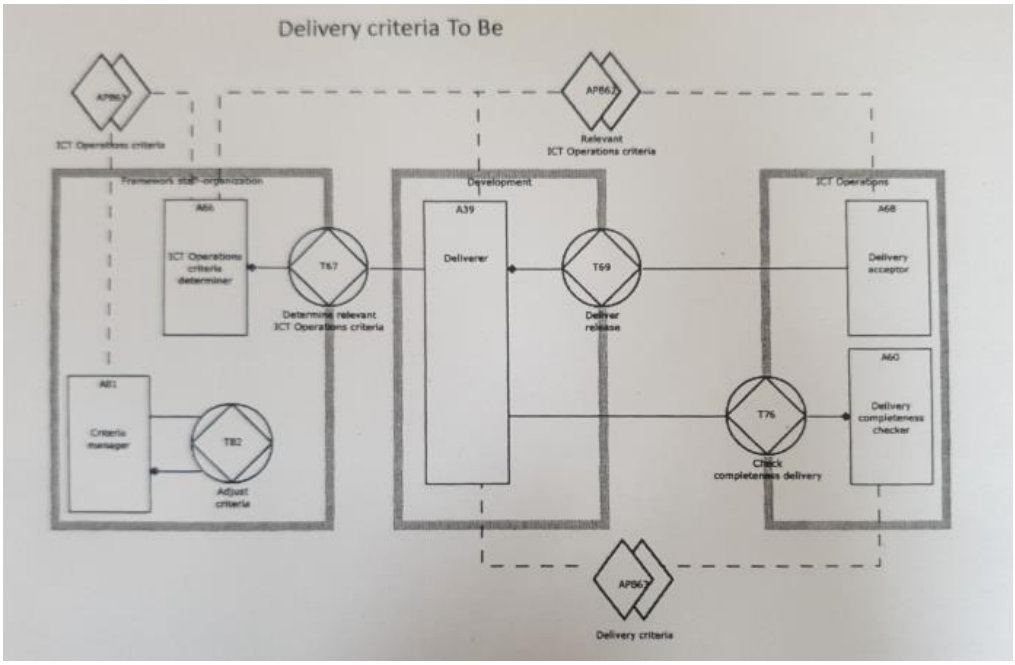
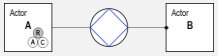


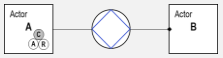
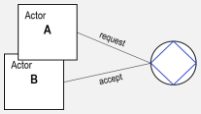
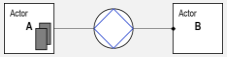
Figure 2.25: ***'To Be' Delivery Construction Model – from Development to ICT Operations*** *(Extracted from Janssen, 2016 p.99)*

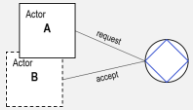
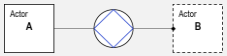
2.5 Elementary Construction Flaws (ECF)

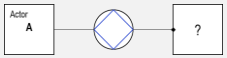
This study is about Strategy Execution, however, to understand what constrains implementation, there is a need to analyse typical errors in the construction drawing of an enterprise. The researcher will now present twenty-two (22) *common elementary construction flaws (ECFs)* / errors in organisational designs reflecting and mapping them to their relevance in influencing Strategy Execution – See Table 2.14, below.

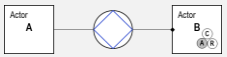
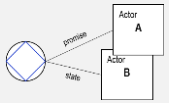
Table 2.14: Mapping of Elementary Construction Flaws (ECF) to Strategy Execution Drivers

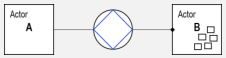
ID	Error	EE Notation	Error Description	Relevance to SE	Related Strategy Execution Driver (refer to the number in Table 2.3
01	Missing Initiator (Redundant work)		▪ This error or construction flaw relates to performing work that which no one asked for hence 'redundant work. ▪ This error could also be because the transaction was necessary in the past but not anymore.	Yes	Organisational Alignment (4) - *Mission and Strategic Choices Alignment* - *Portfolio, Programmes, Projects & Critical Activities (tasks) Alignment*
02	Unclear Initiator (It is unclear who the client is)		▪ This error or construction flaw relates to issues of clarity about the initiator of the transaction. ▪ In other words – the transaction is important, but it is not clear who initiated it and this lack of clarity may lead to none of the actors doing what they are expected to do.	Yes	Organisational *Design* (2) - *Structure (organogram)* - *Role clarity* - *Clarity of Decision Rights*
03	Missing Responsibility Initiator (Seems no one is interested in the Result)		▪ This error or construction flaw relates to issues lack of responsibility by the initiator which results in the work being done hastily or in a hurry and sometimes not being completed. ▪ As an example, this could be caused by delegating a task to an incorrect role or a person who does not take time to understand and diligently work on the task.	Yes	The People (human resources) (11) - *Process to Get the Right People for where the Company is 'going'.* - *Developing a Leadership Pipeline and Retention Plan* - *Continuous development of workforce* - *Framework for dealing with Performers & with Non-performers*
04	Missing Authority Initiator (Unauthorised Work)		▪ This error or construction flaw relates to issues of actors who do not have the authority or the mandate to perform the work. ▪ The inverse is desirable – each actor role must have authority to do the work. It should be noted this also applies the executing role.	Yes	Organisational *Design* (2) - *Structure (organogram)* - *Role clarity* - *Clarity of Decision Rights*

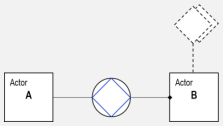
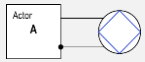
05	Missing Competence Initiator (Do not know what you want)		▪ This error or construction flaw relates to issues or a scenario where the *initiating actor* has the authority and responsibility but <u>does not</u> have the *competence*. ▪ This missing competence could be due to lack of education, skills, experience which then compromises the transaction delivery or quality.	Yes	The People (human resources) (11) - *Process to Get the Right People for where the Company is 'going'.* - *Developing a Leadership Pipeline and Retention Plan* - *Continuous development of workforce* Organisational *Design* (2) - *Structure (organogram)*
06	Split Request and Accept Initiator (Request & Acceptor have incompatible views)		▪ This error relates to issues scenarios in some organisations wherein the person who initiates a transaction has no or limited say in the acceptance of the deliverable. ▪ Or in scenarios where the acceptance is delegated and the views of actors A and B (the delegator and the one delegated) are different.	Yes	Organisational *Design* (2) - *Structure (organogram)* - *Role clarity* - *Clarity of Decision Rights*
07	Split Initiator (Shattered Request – for example a Committee as an Initiator)		▪ This error or construction flaw usually happens in scenarios where a committee is an initiator (Actor Role A) ▪ In practice steering committees usually get so divided that no decision is taken, or decisions are delayed thereby delaying the transaction.	Yes	Organisational *Design* (2) - *Structure (organogram)* - *Role clarity* - *Clarity of Decision Rights* The Strategy Itself (1): - Clarity of Strategic Priorities– *as a mechanism for prioritisation*
08	Overlapping Initiator (Double Requestor)		▪ This error relates to transactions started by different actors without them being aware of each other's initiatives. ▪ As such, the transactions will be performed twice costing unnecessary efforts and resources. In other cases, it confuses the executor "…someone already asked for this".	Yes	Organisational *Design* (2) - *Structure (organogram)* - *Role clarity* - *Clarity of Decision Rights* Organisational Alignment (4) - *Human Resource (Team/ Leadership) Alignment*

					Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done and the timing)*
09	Missing Accept Initiator (No Acceptance)		▪ This error or construction flaw relates to a scenario wherein an actor (Actor Role A) initiates a transaction by way of a request but there is no one to accept the deliverable(s). ▪ This creates doubts on the authenticity of the request (whether an order was 'actually' made)	Yes	Organisational *Design* (2) - *Role clarity* - *Clarity of Decision Rights* Communication & Information Management - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done and the timing)*
10	Missing Executor (No body does the Work)		▪ This error relates to a scenario where, for example, a strategic initiative is launched but nobody 'actually' does the work. ▪ It should be noted that without an executor there is no transaction (similarly, see ECF#20).	Yes	Organisational *Design* (2) - *Role clarity* - *Clarity of Decision Rights* Organisational Alignment (4) - *Organisational Structure - Human Resource (Team/ Leadership) Alignment* Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the*

					communication is done and the timing) The People - the human resources (11) - *Process to Get the Right People for where the Company is Going forward.* - *Linkage of the People Process and the Strategic Plan hence Trajectory.* - *Framework for dealing with Performers and with Non-performers.*
11	Unclear Executor (From pillar to post)		▪ This error or construction flaw relates to a scenario where it is not clear who has the mandate to perform work (the executor). ▪ Usually this manifests as fuzzy or blurred lines of responsibilities between departments for example: which part of Wellness lies with HR, and which one lies with Health & Safety.	Yes	Organisational *Design* (2) - *Structure (organogram)* - *Role clarity* - *Clarity of Decision Rights* Organisational Alignment (4) - *Organisational Structure - Human Resource (Team/ Leadership) Alignment* Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done and the timing)* The People - the human resources (11) - *Framework for dealing with Performers and non-performers*

12	Missing Responsibility Executor (No responsibility for the Result)		▪ This error or construction flaw relates to scenarios where a 'task' grows and is divided without specific intention of doing so and these changes are not formalised. ▪ Because of this scenario everyone assumes that actor role B will do the task, but that executor has 'no responsibility' documented or otherwise to do that task.	Yes	Organisational *Design* (2) - *Structure (organogram)* - *Role clarity* - *Clarity of Decision Rights* Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done & the timing)*
13	Missing Authority Executor (No Mandate to do the Job)		▪ This error or construction flaw relates to pride of employees in most organisation concerning admitting that they lack authority to perform certain tasks or make decisions. ▪ Because of this 'pride' or ignorance some employees like to make promises but often fail to act on them or should they perform the transaction is later revised – citing 'no authority'.	Yes	Organisational *Design* (2) - *Structure (organogram)* - *Role clarity* - *Clarity of Decision Rights* The People - the human resources (11) - *Framework for dealing with Performers and with Non-performers*
14	Missing Competence Executor (Do not Know How to Do the Job)		▪ This error or construction flaw relates to scenarios where an actor role has the authority but lacks the competence to do the job. ▪ This ordinarily leads to bad delivery – for instance: missing key milestones in strategy execution; poor quality product or no product at all.	Yes	The People - the human resources (11) - *Process to Get the Right People for where the Company is Going forward.* - *Framework for dealing with Performers and with Non-performers.*
15	Split Promise & State Executor		▪ This error or construction flaw relates to scenarios where a 'promise' (or commitment) is made to offer a specific service or product but the person (or the actor) who makes the	Yes	Organisational *Design* (2) - *Role clarity* - *Clarity of Decision Rights*

	(Promise is Not Kept)		promise has delegated the execution to someone else. ▪ This is typically the norm in business wherein the sales or business development teams engage the client on behalf of the production / development of the execution team. This is not a bad thing however the challenge comes when the requirements, acceptance criteria or the 'promise' is not adequately discussed or understood by all actors/		Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done and the timing)* - *The type and quality of information shared (the origin of that information; where it is stored and how it is shared*
16	Split Responsibility Executor (Shattered Execution)		▪ This error usually occurs when the executing role is <u>not</u> elementary (that is there is no single unit with the responsibility, authority, and competence to perform the job) but is split up (that is performed by several people). ▪ The challenge is this 'committee' or 'steering group' type of executing unit is not necessarily always aligned but has different or sometimes opposing interests that may obstruct and or slow execution of a transaction -program, project, or strategic initiative.	Yes	The Strategy Itself (1): - *Clarity of Strategic Priorities– as a mechanism for prioritisation* Organisational *Design* (2) - *Role clarity* - *Clarity of Decision Rights* Organisational Alignment (4) - *Mission and Strategic Choices Alignment* - *Portfolio, Programmes, Projects & Critical Activities Alignment*
17	Overlapping Executor (Double Work)		▪ This construction flaw usually happens when two people end up doing (executing) the same task without either being aware of it. ▪ This is commonly attributed to lack of clarity during the design of the cooperation and the	Yes	Organisational *Design* (2) - *Role clarity* - *Structure (organogram)* - *Clarity of Decision Rights*

			subsequent absence of related documentation for such transaction details.		Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done and the timing)*
18	Insufficient / Missing Information Executor (Missing key Information to do the Job)		▪ This construction flaw is common in many organisations wherein the production team is expected to deliver 'albeit' with limited or no information. ▪ In some cases, this information is incorrect or incomplete and as such, has a bearing on the outcomes. It is also common in business wherein 'strategic projects' are launched or frozen based on poorly grounded business cases.	Yes	The Strategy Itself (1) - *'A Good Strategy'* - *Clarity of Strategic Priorities – as a mechanism for prioritisation* Organisational Alignment (4) - *Mission and Strategic Choices Alignment* - *Portfolio, Programmes, Projects & Critical Activities Alignment* Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done and the timing)* - *The type and quality of information shared (the origin of that information; where it is stored and how it is shared*
19	Undesirable Self-activation		▪ This construction flaw relates to a scenario where one party (an actor) decides to perform an action without having received an explicit		Organisational *Design* (2) - *Structure (organogram)* - *Role clarity*

	(Undesired Own Initiative)		request (meaning this actor is both an initiator and an executor). ▪ It should be noted that with some roles – this is usually the norm as some roles action will need to be put on the system (e.g., ordering material via an inventory system) to allow further actions/ processes to ensue – however, in some jobs self-activation is not desired.		- *Clarity of Decision Rights* - *Culture (the combination of shared values and practices / behaviours)* Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done and the timing)* Vendor & Contracts Management Framework (10) - *Enforceable contracts / agreements* - *Contracts with obligations of either party are clearly outlined* Partnerships (11) - *Partner Management Framework*
20	Missing Transaction (Activity Not Known)		▪ This organisational error or flaw relates to scenarios where actors or parties to a transaction assume a particular deliverable was executed only to find out that nothing was done. ▪ It is not usual in organisations to see huge transactions being impacted by an activity that a particular party (specialist, executive, or partner) was supposed to do, but did not -as minor or small as it might be. In other words, a specific connecting transaction was missed, hence impacting the efficiency of the whole cooperation.	Yes	Organisational *Design* (2) - *Role clarity* - *Clarity of Decision Rights* - *Culture (the combination of shared values and practices / behaviours)* Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done and the timing)*

					- *The type and quality of information shared (the origin of that information; where it is stored and how it is shared* Vendor & Contracts Management Framework (10) - *Enforceable contracts / agreements* - *Contracts with obligations of either party are clearly outlined* Partnerships (11) *Partner Management Framework*
21	Unclear Transaction (Unclear Agreements)		▪ This construction flaw arises in scenarios wherein two parties agree on a transaction but upon delivery, the requester (Actor Role A) is not happy with the deliverables from Actor Role B (the executor). ▪ Even though the parties: the initiator and the executor, thought they had an agreement, a close analysis shows they had a misunderstanding.	Yes	Organisational *Design* (2) - *Role clarity* Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done and the timing)* - *The type and quality of information shared (the origin of that information; where it is stored and how it is shared* Vendor & Contracts Management Framework (10) - *Contracts with obligations of either party clearly outlined* Partnerships (11) - *Partner Management Framework*

22	Unclear Acceptance Criteria (Requester / client did not get what they Asked for)		▪ This organisational construction flaw usually occurs in scenarios where there is no explicit acceptance criteria or the list is not complete but partial. ▪ At practice level the executive team or senior managers may execute a strategic initiative only for the EXCO or the Board to say "this is not what we asked for"	Yes	The Strategy Itself (1) - *'A Good Strategy'* - *Clarity of Strategic Priorities – as a mechanism for prioritisation* Organisational Alignment (4) - *Mission and Strategic Choices Alignment* - *Portfolio, Programmes, Projects & Critical Activities Alignment* Communication & Information Management (7) - *Communication as a means of Affording and Fostering Cooperation (who communicates, how the communication is done and the timing)* - *The type and quality of information shared (the origin of that information; where it is stored and how it is shared*

Sources: (elements extracted from Janssen, 2016)

2.6 Enterprise Engineering in Practice (the Scope & Approach)

Reflecting on the above sections explaining the theoretical foundations of Enterprise Engineering (EE), it should be clarified that EE is not a method for determining the best company strategy but rather an engineering discipline that has emerged from the need for a comprehensive view of the enterprise (Dietz & Hoogervorst, 2013; Janssen, 2016; De Vries, 2016). (Janssen, 2016) puts it bluntly by arguing that an organisation that wishes to introduce a specific strategy cannot do so without enterprise engineering, as this is the ideal method of finding out whether the organisation can handle the strategy in the first place. This is consistent with the researcher's hypothesis that challenges the traditional view of strategy execution to focus on the core structural elements.

In their research paper (Rouse & Pennock, 2016) argue that enterprises are essential to sustain the modern society, and it is ***how work gets done*** {strategy execution}. The same authorities further acknowledge that "…however, they (enterprises as social-technical systems) rarely receive the level of attention and rigour that technical systems get". This is consistent with the notion that if one does not understand the context in which an intervention is administered, they cannot claim to be not in control nor can they objectively predict the outcome. (Janssen, 2016) puts it directly, "… as long as the problem is not studied using a proven objective method, all the patterns of cooperation including what goes on (in the system of interest – the enterprise), remain unclear" one cannot claim to be in charge or in control. As such there is need to change the reference framework and look at organisations in a different way. (Rouse & Pennock, 2016) agrees that "…at a high level, an enterprise is no different than a traditional engineered system". These thoughts suggests that even though the enterprise is more complex than technical system (as in the example given), for one to objectively predict the outcome of any system intervention, the approach should have the same rigor and objectivity as the engineering method.

Consequently, this mindset shift requires an enterprise to be seen as a system that can be understood in detail to the extent of knowing where to tweak - to influence a result. The same way an *automotive engineer* adjusts valves to influence the performance of an automobile. This engineer does so because they understand the details or the construction of the system in question – which is the car engine system. Complex as it may be the *enterprise engineer* should to an extent take control of the enterprise the same way as the automobile engineer is at peace with their vehicle performance desires. Rightly so, the extent of control will be limited by the

complexity introduced by the social element in an enterprise system (Dietz & Hoogervorst, 2015).

The value of EE will be realised when the enterprise engineer or the leadership in charge can first check the design or construction of the organisation before choosing to replace systems (hardware or software); introduce new or enhance processes; restructure (staff – add or trim) the organization or introduce culture shocking strategic initiatives (mergers, major projects) etcetera. In essence enterprise engineering (EE) helps bring real change to organisations as it focuses on the underlying structure (the construction elements and their interaction) of the enterprise. Preliminary literature review from different authorities revealed several benefits of EE (Saenz, Chen, Centeno, & Giachetti, 2009; Dietz & Hoogervorst, 2013; Pennock & Rouse, 2016; Janssen, 2016).

- It is useful and safer to understand the organisation as a *complex social-technical whole system,* which then allows sustained cost saving if an intervention is done in context of the overall impact
- It is also useful discipline for housing (casing) initiatives or problems that require in-depth analysis and yet their solution space and impact of intervention is multi-disciplinary
- It can be used as a measure to check if a company can handle new strategies or change initiatives. Accordingly, an organisation can avoid lengthy costly trial and error interventions by examining the inner ways of work
- Lastly, it focuses not only on the business processes and communication networks in order to be competitive and achieve business objectives but also on the whole enterprise and its elements.

Inferring from the benefits above, unlike other disciplines or approaches, it can be argued that enterprise engineering.

i. will bring visibility and clarity on the construction, the construction elements and construction flaws (if any) of the system of interests (in this case the enterprise).
ii. is more likely to track real problems as opposed to problems that are assumed to exist.
iii. is more objective in identifying the need and areas for change and the impacts. Consequently, this will allow for easy integration or enhancements to existing systems should that need, or requirement arise.

Notwithstanding the imperfections and limitations of any approach (EE included) there is a strong case for using EE in uncovering to aid SE. Although not in detail at this stage, the value of EE has been ventilated so as the SE gap (both theory and practice). This research effort attempts to capture the known *strategy execution* ideas and knit them together with the new theories and new insights from ongoing research to uncover the DNA (the underlying structure) that drive organisations guided by the principles of *enterprise engineering* (EE).

Part C: Gaps in Current SE Efforts / Frameworks and the Potential of EE

This section reflects on the current efforts to close the strategy execution gap summarising various topics as discussed in the previous sections. The common themes in the interventions are also outlined. The chapter ends with a review of the possibilities enabled by enterprise engineering.

2.7 The Current Effort to Improve the Success Rate of Strategy Execution

Several authorities (MacLennan, 2011; Brinkschroder, 2014; Grabowska, Krzywda, & Krzywda, 2015) have proposed several frameworks to drive strategy execution. A constant in all these frameworks is the role of project, programme, and portfolio management in driving strategy implementation (MacLennan, 2011; Hyvari, 2016; Kopmann et al., 2017). While it has been shown in literature that project portfolio management is a strategic management function that provides a bridge between strategy formulation and its implementation (Meskendahl, 2010 as cited by Kopmann et al., 2017), conventional project management processes typically do not incorporate diagnosis and testing of the alignment of projects with organisational objectives (MacLennan, 2011). Some authorities limit strategy execution to – allocating resources and changing organisational structure (Aaltonen & Ikavalko, 2002). However, strategy execution is far more challenging and complex (MacLennan, 2011). Mindful of this complexity, several authorities and academics have outlined different prescription-like heuristics to try and guide practitioners in navigating the pitfalls in delivering the strategic objectives. (Raps, 2005) published what the authority called '*strategy implementation top 10 checklist';* (Speculand, 2009) also presented what the authority called '*six necessary mind shifts for implementing strategy'.* (MacLennan, 2011) also published what the authority called '*a framework for strategy execution",* wherein an inverted pyramid framework was presented as that which informs how organisational designs and systems should align to deliver critical activities. However, (Strivastava & Sushil, 2017) argue in support of that inadequacy (rather in the authorities' words – *the lack of strategy execution frameworks*) among the many prescriptive publications. (Strivastava & Sushil, 2017) goes on to affirm that classically strategy execution has been addressed as the process of aligning organisation design with strategy. Of these attempts to address strategy execution, the common themes lie in …

- ***organisational alignment*** *(between organisation design and strategy - hence clear and timely communication/ information flow)*

- ***top management commitment*** *(a mind-shift on how the leadership view execution)*
- ***operational process factors*** *(frameworks for operational planning and resource allocation)*
- ***organisation structure*** *(that which enables decision making, accountability hence execution)* and
- ***organisational culture*** *(resulting in intrinsic motivation and an enabling environment).*

The authorities of these initiatives and interventions as presented above and as extracted from literature, have tended to study the strategy execution using traditional managerial methodologies and some heuristics which are deficient in empirical evidence. Mindful of the difficulty in making universal prescriptions to address managerial challenges, this study attempts to fill the gap by using mixed research methods and anchoring the study on enterprise engineering theoretical foundations. Hence the use of the 3 - round Delphi method to build consensus and with the subsequent Delphi rounds to validate the findings.

Application of Enterprise Engineering | Possibilities Enabled by EE

From a theoretical standpoint EE provides insight into the organisational construction to study and analyse the *elementary- level construction flaws* (ECF), what (Janssen, 2016) call – the 'basic errors' in the universal pattern of cooperation. In practice EE has been applied in business process optimisation (Opp's Land & Jan, 2012; Dietz & Hoogervorst, 2013; Janssen, 2016).

- ***Studying, Modelling and Designing*** business processes. EE finds application in unpacking the elementary structure of organisations to better understand and model them. The DEMO (Design and Engineering Methodology for Organisations) framework is one of the EE based frameworks that has used for such – what (Op't Land & Jan, 2012) call the standard enterprise transformation dashboard – the prime model for getting first order insight in the impact of change.
- ***Reorganisations:*** (if one has insight in the elementary level construction of an organisation one can adjust the organisation effectively)
- ***Outsourcing***: (EE provides the thoroughness required to analyse every SLA (service level agreement) and related agreements that form the basis of cooperation between the provider and the client)

- ***Complexity Control and Reduction:*** the sudden surge in ICT related applications in organisations has added complexity but this rush, many times require checks to continuously confirm the relevancy of these 'Apps' and avoid duplication – often referred to as 'application rationalisation'. EE provides the framework to accurately define the roles of the applications, the actors and visualises which applications support which transaction.
- ***Implementation of Enterprise-wide Packages:*** (ERP – enterprise resource planning) packages described loosely involves separate modules of the apps defined above, of course with the benefit of a single database. However, the same issues arise. EE engineering affords one to look at what the users do – the transactions involved such that the ERP packages and their application modules are aligned to the role of the users and requirements of the transactions at elementary level.
- ***Mergers and Takeovers***: EE can reveal the constructions of both organisations for the best possible connection when sliding them together (Janssen, 2016).
- ***Implementation of Methods***: EE provides the basis of an objective reality check before use or adoption of the myriad of methods / models available in today's competitive environment. Some of these common methods include, Lean, Agile, ITIL among many well marketed interventions in today's digital world.

The dominant theme in these few applications is that EE is useful to ensure such changes and adjustments are administered correctly in one go, without wasting resources in experiments and trial and error (Janssen, 2016).

2.8 Theoretical Lens of this Study (*Alpha, PSI, Beta, Delta* theories of EE)

This study is anchored on the *enterprise ontology theory* as developed and presented by Jan L.G Dietz (2006). The advocates of this theory argue that it is the starting point for (a) understanding an enterprise in its fundamental form; (b) it separates the stable form of an enterprise (the essence of the organisation) from that which varies with implementation dynamics and as such; (c) provides the objective basis to analyse, (re)design / re-engineer enterprises. It should be noted that the enterprise engineering domain currently has 11 theoretical elements – FI theory, MU theory, TAO theory, PSI theory, DELTA theory, OMEGA theory, Alpha theory, BETA theory, IOTA theory, NU theory and SIGMA theory. This study was anchored on four of these theoretical elements and these are outlined and explained below.

- Alpha (A) theory focuses on the ‘organisational essence’
- PSI (Ψ) theory focuses on ‘organisational operation’
- Beta (ß) theory focuses on ‘organisation design’
- Delta (Δ) theory focuses on ‘systems theory’

The four theories outlined above are explained together the same way they manifest in practice. In other words, they interrelate. The Alpha theory also referred to as – ‘Abstraction Layers in Production for Holistic Analysis (ALPHA) centres on the cooperation layers in organisations as presented in figure 2.15 where in the argument is that production acts are either original (ontological – for example developing new things, deciding and judging); or informational (Infological – for example remembering facts, a typical case being remembering production processes) or documented (Datalogical – for example databases or information portals that contains facts). Complementing the Alpha theory, the PSI theory takes a ‘communication-centric view’ of an enterprise focusing on cooperation (the way actors relate or cooperate) as revealed in business processes. It follows that business processes are important as they support the notion of the coordination acts wherein there is an initiator, an intention, an executor, and a product. However, business processes are not the essence rather they follow underlying transactions agreed to by actors. The PSI (‘Performance in Social Interaction’) theory examines the operational essence of the organisation appreciating that organisations are social-technical systems (Delta theory) with actors that enter into agreements and comply with commitments towards each other (Dietz & Mulder, 2020). The fundamental principle of the PSI theory and the Delta theory is that transactions -the way organisations cooperate, and the related actors (their authority, responsibility, accountability, and competence) forms the essence of the organisations and that essence stable as it is, appreciates the interconnectedness of its elements to each other and to the environment. Rooted in systems theory, the Beta theory also referred to a Binding (constructional) Essence, Technological and Architecture (BETA) is a theory about designing of (discrete) systems. This part of EE theory takes care of enterprise architecture (EA) elements and guides the implementation (in this study strategy execution). Another that came out from the literature review as a reason of strategy failure at execution is lack of congruence among the various components in an organisation. EA provides design guidance for establishing a coherent and consistent enterprise (Dietz & Hoogervorst, 2015).

In summary the essence of this theoretical lens (Enterprise Ontology) is to reveal the deep structure of the organisation, that which is stable and implementation independent but reveals the actual inner workings of the organisation. Having clarity at ontological layer allows for

better decision making and sustained interventions - strategy execution included (Dietz & Hoogervorst, 2015; Dietz & Mulder, 2020; Fernandes & Tribolet, 2021).

2.9 Reflections on an Alternative Theoretical Lenses – *General Systems Theory versus Classical Management Theory*

Each time a researcher proposes a new approach, it is expected that a reflection on rival perspectives be done. It is also required that the researcher show how the argued research paradigm (in this case 'enterprise engineering' and specifically enterprise ontology) as well the study outcomes relate and are positioned against the competing lenses.

Strategic management in general – strategy execution included, has been shown to be a highly dynamic and complex field. To this end, several authorities have attributed the continued failure to adequately address the challenge of strategy execution to the successive dominance of different traditional approaches to strategic management (Gregory, 2015; Jackson, 2019; Jarzabkowski, et al., 2019; Pavlov & Micheli, 2023).

As such, to position the case of enterprise ontology as a competing and/ or complementary theory to modern strategic management theories, it is correct to reflect on the broad spectrum of these theories of strategic management. Note that there are several classifications of management theory, and these include: classical management theory at one extreme and modern management theory at the other. Of these modern approaches – there is humanistic management theory, situational management theory, complex systems theory to mention a few. However, in general there are two broad clusters of management theory:

(a) Classical Management Theories – from the time of Fredrick Taylor and other early management scientist theorists.
(b) The General Systems Theories (GST) – these are founded or derived from lessons of natural science – specifically biological sciences and natural laws of nature.

Table 2.15 below shows the landscape of these theories as summarised by the researcher. It should be noted that the view below is not exhaustive but attempts to paint a picture of the two extremes.

Table 2.15: Landscape of the Broad Theories of Strategic Management

	General Systems Theories	**Classical Management Theories**
View of the organisation	*These theories' view organisations as systems*	*These theories' view organisations machines hence they are also referred to as mechanistic theories.*
Main contributors	*Ludwig Van Bertalanffy; Charles Churchman; Peter Senge; Russel Ackoff; Stanford Beer*	*Federick Taylor; Max Weber & Henry Fayol*
Goals	• *Understanding of the whole and the context and the interactions* • *Learning* • *Address the problem and the solutions can be many* • *Explore the problem space as opposed to reducing or simplifying the equation* • *Admit multiple views and examine their implications*	• *Maximise productivity* • *Maximise efficiency* • *Solve the problem with one best solution* • *Predict outcomes* • *Creation of specialised resources* • *Putting in place rules and responsibilities*
Assumptions	○ *Human factors are important in addressing problems* ○ *Organisations are open and complex systems* ○ *organisational problems are messy and poorly defined* ○ *Behaviour cannot always be predicted and controlled* ○ *Decision making cannot always be rational as actors perceive the world differently*	○ *Any problem can be broken down into simple manageable parts* ○ *Most things can be measured and therefore can be controlled* ○ *Behaviour can be predicted and controlled* ○ *Decision making should be rational* ○ *Organisations are largely closed systems*
Resultant Precise Theory	- *Systems thinking theory/ies* - *Complex Systems Theory*	- *Scientific Management Theory* - *Administrative Theory*

	- *Agency Theory* - *Contingency Theory*	- *Bureaucratic Theory*
Examples of Common Methodologies	• *Checkland's - Soft Systems Methodology* • *Senge's – Soft Systems Thinking*	• *Root cause – analysis (RCA)* • *Failure Mode and Effect Analysis (FMEA)*
The Case for these Theories	*The theories have assisted in structuring strategies to cope with ill-structured problems and the complex dynamic world of today.* ✓ *The resultant approaches have also contributed to handling the emergent phenomena inherent in complex systems*	*These are the foundation of all theories of management and advocates argue that they* ✓ *Provide a 'proper' solution for problems of this work (Nadrifar, et al., 2016) in other words the argument is that it is important to develop a science of working.*
Criticism of these Theories	- *These theories have been criticised for the implied assumption of ignoring the issues of power in organisations as members in organisations do not have equal power* (Nadrifar, et al., 2016). - *The resultant approaches or methods that cascade from these theories are too 'loose' and not extensive. This relates to the open-endedness of the methods that make it difficult to manage (Jackson, 2019).* - *They have also been viewed as weak solutions to perform the actual work (Checkland, 1999;*	- *Emphasis is on measurable and objective criteria which is vague especially in systems with high human activity like organisations (Pavlov & Micheli, 2023)* - *These theories are considered reductionist approaches that focus on isolation and control of variables (Checkland, 1999; Jackson, 2019)* - *These approaches to some extent hide conflict as they do not emphasis on participation (Jackson, 2019)*

- *Elements triangulated from* (Checkland, 1999; Jelenc, 2009; Gregory, 2015; Jackson, 2019; Pavlov & Micheli, 2023)

Because an organisation is considered inherently complex socio technical systems – the system thinking approach – specifically with respect to complex systems (complexity systems theory) has been strongly advocated for as an alternative approach to understanding and analysing organisational challenges (Hitchins, 2007; Pennock & Rouse, 2016; Jackson, 2019; Pavlov & Micheli, 2023). This thesis therefore interrogates this theory further.

Systems Thinking

Central to the General Systems Theories (GST) is System Thinking. Systems thinking is thinking about phenomena, events and situations from a systems perspective [that is looking at parts in context of the whole] using systems methods, systems theory and systems tools (Hitchins, 2007). Systems thinking just like all GST approaches sees organisations as open systems with high human activities, as such, the goal is to understand first before intervention. In the systems thinking world, all interactions, engagements and actions on a systems of interest will be pivoted on the purpose of the system. Systems thinking therefore acknowledges that any system intervention has unintended consequences and as such, it advocates for high leverage [the ability to fundamentally improve the performance of a system while at the same time reducing the likelihood of negative consequences] (Jackson, 2019). At the same time, organisations have become too complex to easily predict consequences with reasonable accuracy. It follows organisational performance – strategy execution included does not require relying on current tenants of objectivity, control and predictability. This is because the traditional approaches to performance management do not take into account the complexity of organisations. It follows alternative approaches are required to manage organisation complexity.

The Systems Approach to Organisational Complexity

As stated in section 2.2.1 of this report, the word ‘complexity’ has been used variously in literature however from differently persuasions. Warfield (2002) as cited by Jackson sets out 20 laws of complexity and argued that 70% of these result from the nature of human beings. In the context of organisations this researcher interprets these as emanating from differences of opinion; perceptions; competence; style; social skills and character to mention a few. The complication with enterprise unlike other complex systems is that the ‘people’ related complexity is compounded by systems and processes complexity inherent in particularly large organisations (Jackson, 2019). Further to this, problems rarely present to themselves individually but they come intertwined, marketing issues, production quality issues, cashflow

and so on. As such, there is a case for viewing the organisations holistically before seeking prescriptive interventions.

It follows it is important also to reflect on the main aspects that characterise organisations as complex systems that which warrant front end use of the complex systems thinking approach.

First, organisations have many interacting elements (actors, resources, technologies, systems and so on). As such, methods that seek to incorporate diversity and enable users to understand and analyse relations will give insights into organisational performance drivers and the sensitivity of the prescribed model (Pavlov & Micheli, 2023) [in this case the EE based desired SE model]. It also follows that each strategy execution model, therefore must be tailored for the target context.

Secondly, interactions in organisations are non-linear (Jackson, 1998; Jackson, 2019). This implies that it is a challenge to establish cause and effect relationships between actors. Consequently, if causality is difficult to establish, then the role of reductionist tools like RCA (root-cause analysis; strategy maps) will need to be reviewed (Pavlov & Micheli, 2023).

Thirdly, interactions in complex systems have feedback loops which either reinforces good patterns (habits/ behaviour/ aspects) or conversely expedite its distraction (Checkland, 1999; Hitchins, 2007; Kossaikoff, et al., 2011; Jackson, 2019). As such, it is important for any performance seeking models to be designed such that they identify such behaviours and make use of elements that support superior performance (Pavlov & Micheli, 2023). For practitioners this might mean occasional reflection on lessons learnt [reasons for success or failure].

Lastly, organisations as complex systems are open to the environment (Ladyman, et al., 2013; Jackson, 2019). As such, they are amenable to both endogenous and exogenous forces (Trafford & Boggis, 2017). This means the world view of performance differs depending on the perspective of the actors involved, inside or outside the organisation.

The features explained in the *complexity systems* theoretical lens explained above, gives rise to three important phenomena, emergence, patterning and learning. This therefore obligates researchers and practitioners to design for these in the quest for a living and robust strategy implementation framework.

The founding authorities of enterprise engineering agree that systems thinking should be a default approach when addressing systems with high human activity systems – organisations with their complexities included. As such, systems thinking is one of the foundational pillars

of this domain as presented in Section 2.45 of this report. Janssen (2016 p.15) put it directly – "an organisation only exists because different people work together in a formalised situation". The extension that enterprise engineers bring to this notion is the need to look at how these 'people' cooperate and communicate. Consequently, has seen in previous sections and in the Chapter 7 of this report – this thesis argues that the two theoretical lenses [Systems Thinking approach (specifically the *complexity theory perspective*) and *enterprise ontology* are complementary] however, the latter (EO) goes deeper into the atomic level of the organisation focusing on transaction elements that influence how things work. In other words, it goes beyond understanding (informed influence) to action (informed intervention).

However, because EO seeks to locate a definite structure within the ontological layer, this thesis acknowledges that enterprise engineering is more of a 'hard' systems approach relative to the more 'softer' and holistic approaches like the systems thinking based approaches. It follows

that the inherent limitations of the 'hard' or mechanistic approaches are present in EO.

2.10 Key Constructs Extracted for Literature

This study is about enterprise engineering application, in this case in aiding strategy execution. To that end, below is a summary of constructs that evolved from the literature review that was used to develop the research instrument, Delphi Round 1 questionnaire.

- Category 1: Relationship between enterprise design and strategy execution
- Category 2: Fundamental conditions of success of any strategy execution effort
- Category 3: The case for enterprise engineering in closing the strategy execution gap
- Category 4: The significance of deliberate re-engineering of specific components of an enterprise

Category 1: Relationship between enterprise design and strategy execution: the literature review gave important insights of the need to first understand, and then redesign enterprises for strategy execution (Janssen, 2016). Also noted was the ongoing debate of the importance of a quality strategy and the lack of appreciation of this construct – "… a good strategy is often unexpected because most organisations don't [sic] have one" (Rumelt, 2011). The other aspect that came out is that of viewing and appreciating that organisations are social-technical systems operating an increasingly complex world and as such, any intervention into these systems must

consider the human elements (Dietz, 2006; Hoogervorst, 2009; Fernandes & Tribolet, 2021). Communication as necessary and sufficient basis to explain the inner workings of the ontological level was also emphasised (Dietz & Hoogervorst, 2013) (Janssen, 2016).

Category 2: Fundamental conditions of success of any strategy execution effort: Several authorities argued for the need to reflect on the basic conditions of success of any strategy execution effort. Other authorities reflected on enterprise architecture (Hoogervorst, 2018), while others reflected on the 'right culture' (Bossidy, et al., 2011; Ehlers & Lazenby, 2012; Venter, 2014; Speculand, 2017; Bawtree & Young, 2022). Of note is aspect covering the role of project management, strategy measurement (including related intelligence) and the supporting organisational structure (Radomska, 2014; Leopold-Wildburger & Strohhecker, 2016; Heesen, 2016; PMI, 2021; Bawtree & Young, 2022). The aspect of visionary and collective leadership also came up (Obeidat & Al-Hadid, 2017; Trafford & Boggis, 2017; Tawse & Tabesh, 2020;).

Category 3: The case for enterprise engineering in closing the strategy execution gap: It was shown in the literature review that even though there is arrangement on the complexity of enterprises, several authorities in enterprise engineering are pushing the notion that to better and sustainably intervene in organisations, it is prudent to have clarity in the inner workings of that system of interest (Dietz & Mulder, 2020; Fernandes & Tribolet, 2021) what Hoogervorst and Dietz (2015) call 'white box' knowledge or the ontological (constructional) perspective of an enterprise. This perspective extends to having a human centric view of what Dietz and Mulder calls " … the pearls of the enterprise" (Dietz & Mulder, 2020 p.11). In practice this means competent, responsible, accountable, and empowered employees (Janssen, 2016). The ontological perspective also means clarity on, transactions in place, how people /partners (actors) relate, what information is shared, at which level (Op't Land & Jan, 2012; Fernandes & Tribolet, 2021)

Category 4: The significance of deliberate re-engineering of specific components of an enterprise: The literature review has shown that EE is underpinned by two fundamental concepts – Enterprise Ontology (EO) and Enterprise Architecture (EA). These two are fundamental in intentionally and proactively designing or engineering a system of interest (Hoogervorst, 2018) - in the context of this study designing / engineering for strategy execution. Enterprise ontology focuses on the explicit specification of conceptualisation of an enterprise to aid understanding and operations of it by focusing on the implementation

independent essence of the enterprise (Dietz, 2006). This implementation independent layer is the deepest level in an enterprise where agreements are made (or transactions ensue), that which is relatively stable relative to the subsequent stages (i.e. for example more stable than the Infological layer which can be referred to as the process layer). The thinking here is that if strategy execution is to be sustained there is need to put effort to understand and ready the construction and operation models in the ontological layer and this includes checking for elementary construction flaws (errors) in the transaction layer. Enterprise architecture on the other hand acts as a bridge between strategy and design - providing (a) the alignment role (i.e. traceability or line of sight from the structural building blocks; (b) the conceptual blue print to guide implementation models; (c) the informative role anchored on three views [1] the 'As Is', [2] the 'To Be' and [3] the 'Transition Plan or implementation roadmap'; (d) the instructive role and regulative role [i.e. providing guidelines to steer and coordinate the implementation] (Hoogervorst, 2009; Greefhorst & Proper, 2011; Hoogervorst, 2018; Rao, et al., 2019).

2.10 Chapter Summary

This chapter explored relevant theory on strategy execution and enterprise engineering with the aim of (a) exposing the issues / challenges with the current strategy execution frameworks; (b) reflecting on what has and / or is being done to close that gap and (c) reviewing the nature of enterprise engineering, its potential use in aiding successful strategy execution. A review of the typical errors in organisational design from an enterprise engineer's perspective also known as 'enterprise engineering flaws was also discussed.

The theoretical lens of this study was also presented: *enterprise ontology theory* as developed and presented by Jan L.G Dietz (2006) and reviewed by others (Hoogervorst, 2018; Dietz & Mulder, 2020). Because this is a deductive study as will be shown in in chapter 3 (section 3.3.1), section 2.9, above which detailed the key constructs extracted from literature read together with the rest of the literature review, formed the basis for the development of the research instrument (Delphi round one (1) questionnaire – as will be discussed in the next chapter).

The next chapter presents and discusses the research methods.

Chapter 3 – Research Methods

Though this is madness, yet there is a method in it.

(William Shakespeare, 1564 – 1616, Hamlet)

This chapter presents the research strategy and related methodological matters. That is, it provides an outline and rationale of the methodological approach to this study (logical steps to answer the central research question and achieve the objectives stated in Chapter 1 of this report). For sustained alignment it is useful to restate the purpose and central research question of this study.

> Purpose: to understand how the Success rate of Strategy Execution can be improved through the application of Enterprise Engineering principles and practices.

3.1 Research Framework

The research philosophy one adopts can be thought of as assumptions one makes and how one views the world (Saunders et al., 2019). It follows assumptions underpin the research strategy and the method one chooses as part of his or her strategy (ibid).

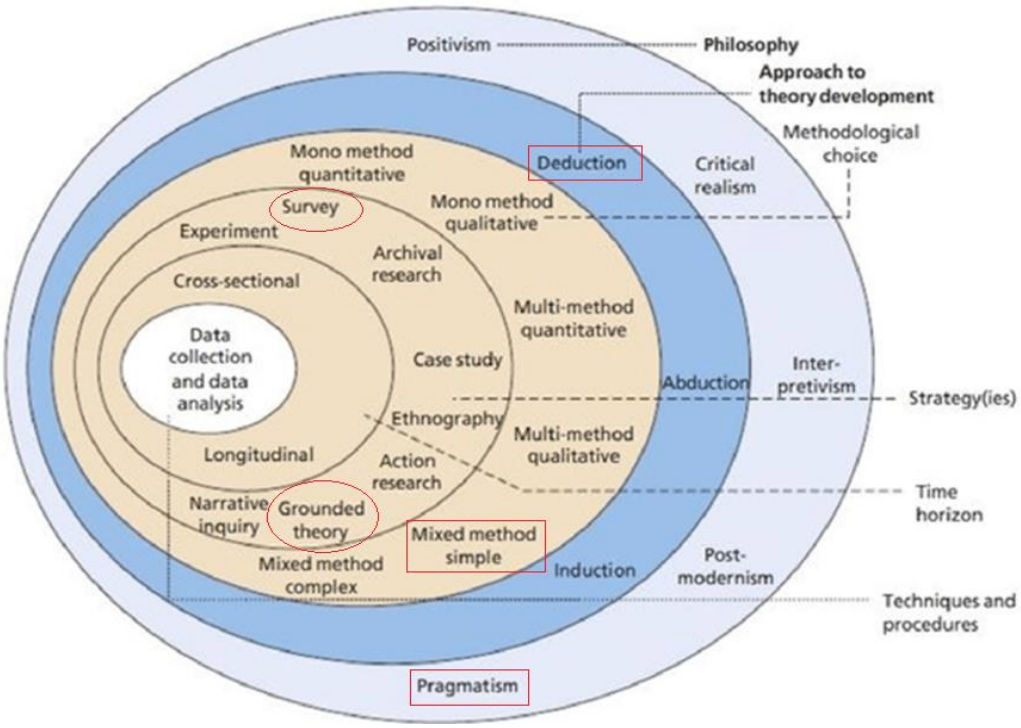


Figure 3.1: ***The Research Onion*** (Saunders et al., 2019)

This study was guided by the methodological considerations highlighted in red as shown in the research onion by Saunders et al (2019) – see Figure 3.1.

This research will follow the path shown in figure 3.2 below:

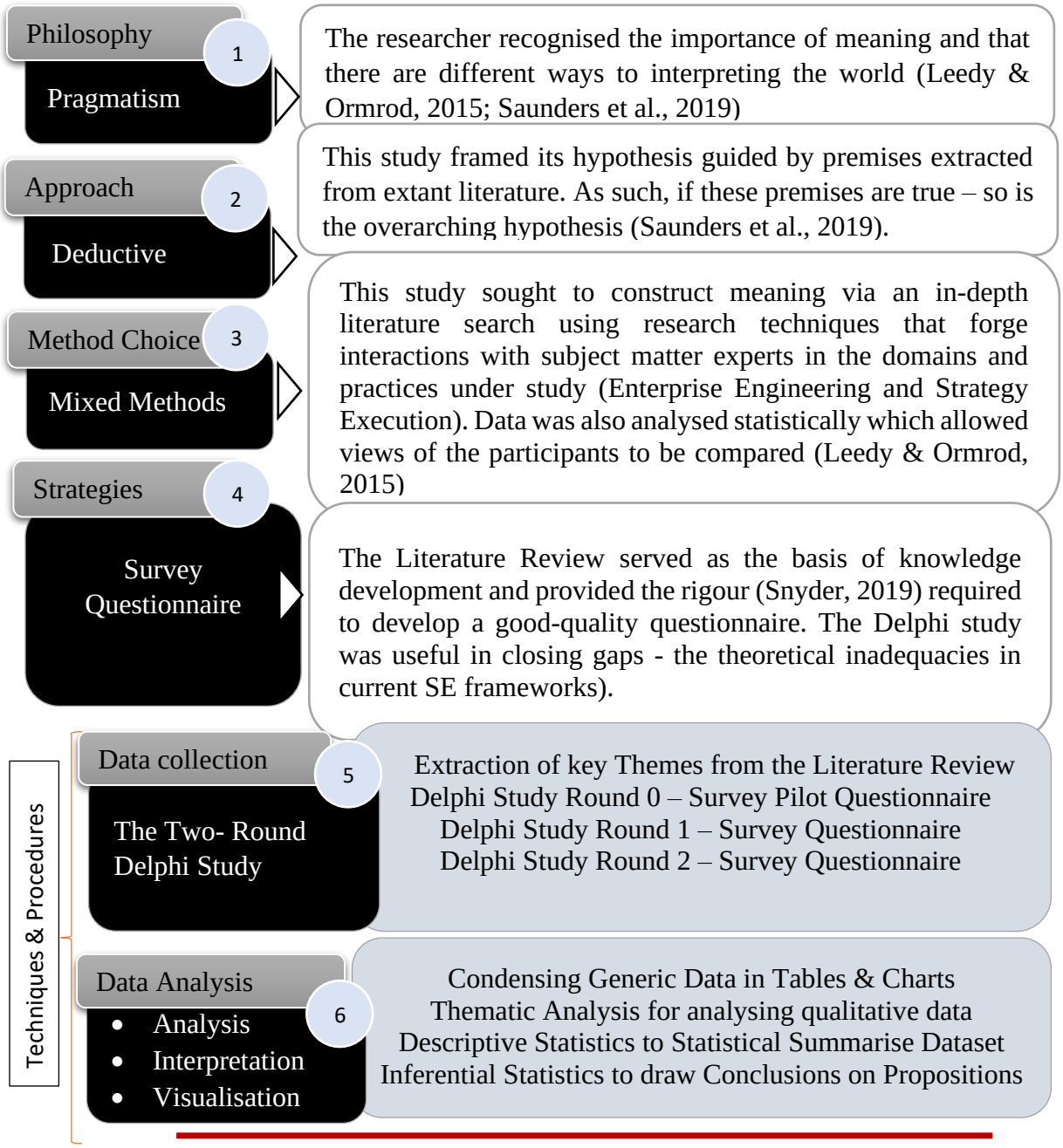


Figure 3.2: ***The Research Outline*** *(authors illustration as guided by* the *'Research Onion'* (Saunders et al., 2019)

3.2 Research Philosophy

Research philosophy is an all-encompassing term relating to a system of beliefs and assumptions (epistemological; ontological and axiological - etcetera) about the development of knowledge and the nature of that knowledge (Saunders, et al., 2019). In other words, philosophy is centred on assumptions one has about the world and how one views it and as such, it has an impact on how one conducts research as shown in Figure 3.2 item 1, the researcher adopted the pragmatism philosophy as the guiding principle for this study.

3.2.1 Pragmatism as the anchoring Research Philosophy

Pragmatism "asserts that concepts are only relevant where they support action" (Kelemen and Rumens, 2008, as cited by Saunders et al, 2019 p.143). This study is about getting things done through 'strategy execution' - as such, the argument is that 'true theories and knowledge are those that enable successful action' (ibid). Consequently, this research exposed solutions to the current challenge of strategy execution and contributed to knowledge by informing and enriching future practices /frameworks.

3.2.2 Methodological Assumptions

Enterprise Engineering is not a method for determining the best company strategy, (Janssen, 2016). This study was conducted on the premise that a strategy has already been adopted and is guided by the following specific assumptions.

Ontological Assumptions (these concerns assumptions about the nature of organisations (enterprises) in reality)

a) The 'technical' part of an enterprise as a *social-technical system* can be separated from the 'social' part to allow the engineering of the enterprise at the lowest possible layer. This delinking cannot be interpreted to mean that enterprises should be purely treated as technical systems, but it is meant to allow analysis where it matters – the essence level of the organisation. Put differently, this cannot be interpreted to mean reducing the importance of the systems approach with its many recorded benefits but to check the robustness of the construction model at the ontological layer.

b) Changes can be deliberately applied by first studying the core of the enterprises to reveal the 'real' problems (the root causes) as opposed to perceived problems. This will provide more clarity on what needs to be adjusted and the consequences thereof.
c) The macroeconomic status and the fundamentals of the enterprises have limited influence on the structural elements that drive execution.

Epistemological Assumptions (these concerns assumptions about what constitutes acceptable, valid, and legitimate knowledge)

e. This study assumed practical meaning of knowledge can be extracted following the pragmatism approach hence used both qualitative and quantitative methods to ensure practical study outcomes.
f. This study also assumed that the participants in this study – subject matter experts including key resources from the case studies are competent (knowledgeable, skilled, informed and experienced in Strategy Execution) and will contribute reasonably accurate arguments.

Ontological Assumptions (these concerns the role of values and ethics in this study)

g. The researcher also assumed his values (at least those that introduce bias) would not influence the study. Rather his values of execution excellence and integrity dominate this study.
h. The study also assumed that the participants in this study – subject matter experts would demonstrate integrity and high ethical conduct as required by the ethics clearance granted for this work.

It follows the most important determinant for research design and strategy for this work is the research problem and the resultant critical research question as presented Chapter 1 of this report and repeated below:

> Critical Research Question: What Enterprise Engineering principles and theoretical foundations can be harnessed to aid Strategy Execution?

3.3 Research Design

From the Critical Research Question, the assumption presented in Chapter 1 and the philosophical assumptions presented in Section 3.2.2 the overarching proposition (P_0) for this study is:

> *All organisations must, to some degree, be designed /engineered or re-engineered to successfully execute strategy*

The primary research methods that were used in this study are the Structured Literature Review and the Delphi technique. The journey that was undertaken in pursuit of the *central research question* involved three (3) stages, Theory Building, Model Development, Model Validation.

Below is the conceptual framework that guided the study (where in $P_{1\text{-}n}$ are the research propositions as presented in section 2.2).

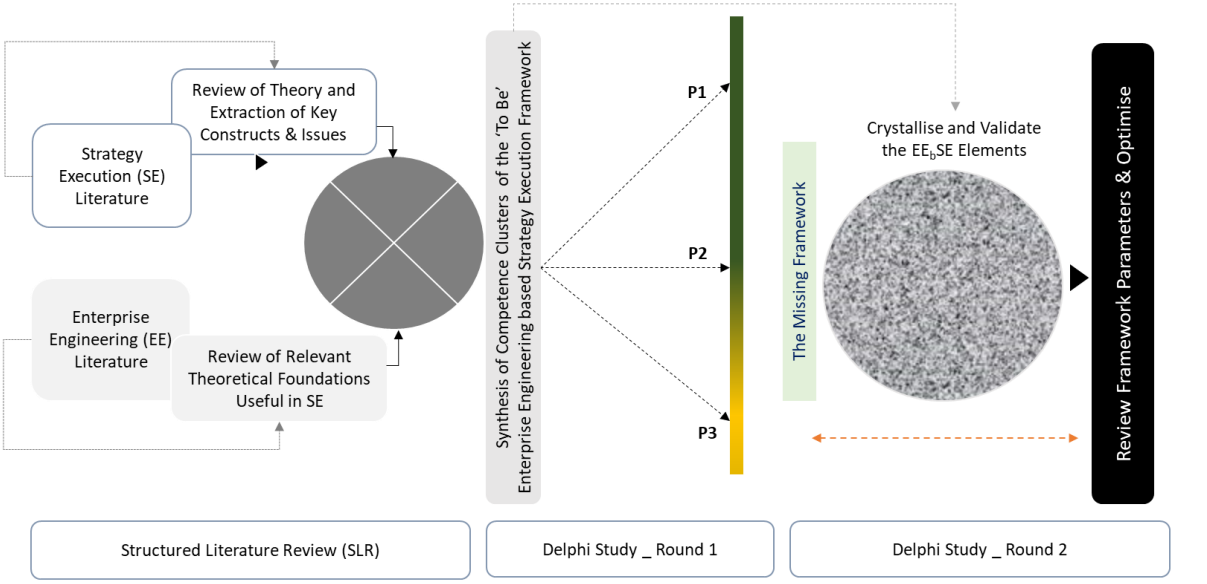


Figure 3.3: ***The Conceptual Framework*** *(researcher's illustration)*

3.3.1 Approach to Theory Development

3.3.1.1 Deductive and Inductive Reasoning

Inductive Reasoning: Inductive reasoning involves the use of a relatively small set of specific observations as the basis for forming a general statement about a larger set of possible observations (Gravetter & Forzano, 2003). (Leedy & Ormrod, 2015 p37) put it differently, "… in other words, one observes a sample and then draws conclusions about the larger population". According to (Yin, 2016) inductive approaches tend to let the data lead to the emergence of

concepts. Because of the sample approach, even though it is time-consuming, this is a common approach used by many researchers in qualitative research (Leedy & Ormrod, 2015).

Deductive Reasoning: According to (Leedy & Ormrod, 2015 p36) "… deductive logic begins with one or more premises. These premises are statements or assumptions that the researcher initially takes to be true – reasoning then proceed logically from these premises toward a conclusion (a hypothesis) that, if these premises are indeed true, so is the central hypothesis". In such research the 'concepts or initial data sets that were streamlined into premises led to the definition of the relevant data to be collected. Deductive approach has its own merits, as it can save the researcher from doing a lot of work in field work because it starts with initial concepts rather than waiting for them to emerge (Yin, 2016).

3.3.1.2 Reasoning Applied in this Study

Inductive reasoning uses specific examples to generate conclusions while deductive reasoning uses general conclusions to generate specific predictions (Gravetter & Forzano, 2003). This study used the deductive approach, and this entailed evaluating and validating the referred to reasoning via the Delphi process. The initial concepts referred to for deductive reasoning were generated from an extensive review of extant literature on the strategy execution gap and the emerging discipline of enterprise engineering.

3.3.2 Research Method

A mixed method approach was used for this research as it sought to holistically address the diverse dimensions of the strategy execution problem. According to Yin (2016; p.305), mixed methods represent a pragmatic alternative that uses both qualitative and quantitative methods before arriving at the study's main conclusions. As can be seen in the next sections the research questionnaires had both open and closed questions although largely closed. It follows this research was largely quantitative. In summary, four key reasons informed the choice of this method – the mixed method (Leedy & Ormrod, 2015; Yin, 2016) - (a) *Proposition Development and Testing* – qualitative data helped provide insights that helped in forming propositions that were tested through quantitative techniques; (b) *Triangulation* – a more convincing case was contemplated for conclusions if both quantitative and qualitative data were used; (c) *Resolution of puzzling findings* – some quantitative studies can give contradictory or inconsistent results and the qualitative approach may reveal underlying

nuances and meanings that help make sense of the numbers and; (d) *Completeness and Complementary* – quantitative aspects compensated for the limitations of the qualitative aspects and vice versa. Hence allowed for a holistic analysis of the problem.

3.4 Data Collection Tools

3.4.1 Preliminary Works for Data Collection

This study started by conducting a critical literature review which was the basis of the theoretical framework adopted in this study (assumptions, proportions, and the theoretical leads that were used to generate the design of Delphi round questionnaires). This entailed establishing a literature review roadmap to locate relevant literature, evaluate its contribution, and synthesise the findings (Saunders, et al., 2019). The steps followed are outlined below.

Step 1: formulation of the research question/s.

Step 2: location and creation of a comprehensive list of relevant studies using online databases.

Step 3: vetting inclusion via predetermined criteria which included credibility of publisher, title, and clarity of abstract and methods used.

Step 4: analysis and synthesis of relevant studies

Step 5: reporting the findings and outline of the study propositions

It should be noted that the purpose of the critical literature review was to help develop a thorough understanding of and insights into the previous work on Strategy Execution and the application of Enterprise Engineering. Hence this effort allowed for a comprehensive questionnaire to be developed which was then used as the primary research instrument.

3.4.2 Delphi Technique - as the Primary Research Instrument

The complexity of strategy execution has been expressed in the introduction (Chapter 1 of this report), and so is the cryptic nature of the existing, mainly industry-driven interventions. On the other hand, the limited advancement and wide application potential of Enterprise Engineering as a guiding domain in organisational design issues was also discussed. Against this background the Delphi study was found fitting as a technique to level the ground before further work or theory is proposed or developed (Strang, 2017).

The Delphi Technique is "… a method for structuring a group communication process so that the process is effective in allowing a group of individuals as a whole, to deal with a complex problem" (Linstone & Turoff, 2002; Linstone & Turoff, 2011 & Strang, 2017). In simple terms, the Delphi technique involves an iterative process of collecting and distilling the anonymous opinions and perspectives of experts using a series of questionnaires. Consequently, this technique allows interaction of the researcher (the facilitator in most cases) and the experts on little - understood complex phenomena with the aim to get convergence. This in practice is done via a series of questionnaires to identify the facts and issues – thereafter seek expert opinions and ultimately consensus (Linstone & Turoff, 2011).

Over the years' key new initiatives have evolved to better optimise the Delphi technique which includes focusing the participants on resolving the major disagreements, computer-assisted Delphi (the Delphi Conference) among many variations, (Linstone & Turoff, 2011). Regardless of variation of the Delphi Technique, the method has four (4) distinct phases (Linstone & Turoff, 2002; Linstone & Turoff, 2011 & Strang, 2017) – (1) Exploration of the subject under discussion - where individuals contribute additional information, they feel is pertinent to the issues under study; (2) Reading and understanding of how the group views the issue - seeking consensus reflecting on the issues where there is agreement or disagreement or require clarification; (3) Clarifying and exploring any significant disagreements - those highlighted in items (1) and (2) to bring out the underlying reasons for differences and possibly evaluate them and; (4) Final evaluation and feedback to the expert panel - where in the facilitator (or researcher) collates and analyses all data collected, evaluates the information, and provides feedback to the panel).

Limitations and Critics of the Delphi Technique – it is important to state that this technique is <u>not</u> without limitations or critics.

Among criticisms of note, the approach has been argued to be time-consuming, labour-intensive, diluting the best opinion in the name of consensus and has a low response rate hence (hence if not carefully designed, the technique has significant drop outs as it uses self-completion questionnaires especially in multi- round studies (Strang, 2017). To counter this, the questionnaires in this study were meticulously designed and tested to avoid ambiguity, and confusion, and increase the response rate. Several avenues were explored to ensure the reliability and validity of this research instrument. These include but are not limited to (Rowe & George, 2011; Arash, Azam, & Sedigheh, 2014),

- Use of introductory letters ensured the target experts understand the premise and the purpose of the research
- Use of periodic | pre-set time staggered reminders assisted experts to finalise the inputs (follow-up calls may be used, if necessary)
- The researcher devoted considerable time and attention to the design of appropriate questions all linked to the objectives and back to the central research question
- Design an objective process for participants' selection (experience in the area under investigation; capacity (availability to participate); and willingness to participate)
- Participants (the subject matter experts) were allowed to self-rate themselves as a way of confirming their confidence levels to aid in the weighting of their contributions
- Design an objective process to recruit and retain the expert panelists (that includes among many ways; use of publicly available profiles (LinkedIn); self-rating of experts etc.)
- Creating useful heterogeneity in the Delphi panel membership (Academia; Industry practitioners and consultants) and playing the *devil's advocate* in Delphi Round 1 (that is expressing contentious opinions to provoke debate)
- Pilot testing the questionnaire to examine and rectify any potential issues and problems that are anticipated or may surface before full implementation of the Delphi study.

Advantages of using the Delphi Technique

With all the above limitations and cognisant of the critics of the method, the Delphi technique still has several advantages, these include but are not limited to the following as gathered and summarised from different authorities (Linstone & Turoff, 2011; Arash, Azam, & Sedigheh, 2014; Avella, 2016).

- Provides a structured way of finding consensus in areas of uncertainty or in situations lacking in causation (especially where multiple stakeholder groups are potentially involved)
- It is a simple but flexible method. For example, other researchers may elect to start the process by presenting initial responses to the panel question obtained from the literature

or start framing the research effort with the panel by asking open-ended questions to the panel

- It encourages and fosters knowledge sharing between practitioners and academics (in both directions)
- It allows different disciplines to share knowledge and stimulate new ideas that apply to the purpose of the research effort which can broaden the knowledge base of the participants
- Besides the participants and the researcher's time (assuming all are volunteers) and if the researcher does not integrate the Delphi study with an instrument that comes with a fee, the Delphi study is considered highly cost effective
- It gives participants the freedom of expression or considerable latitude in presenting their opinions without fear of criticism largely because of the anonymity inherent in the process.
- By design and aided by the advancement in electronic communications and digital evolution the Delphi method virtually eliminates the issue of geographic proximity

*Note that these are not presented in any order of importance.

Previous Use of Delphi in Theory Development

The first non-military use of the Delphi technique was in economic development studies in the mid-1990s (Arash, Azam, & Sedigheh, 2014). Over the years the technique has been found useful when researchers need to collect ideas from geographically isolated experts on a specific topic and establish agreement to discover the underlying assumptions or perspectives among the subject matter experts (which is common in domains in their infancy like enterprise engineering and/ or less understood / researched areas like the theoretical foundations of strategy execution). A review of literature related to the use of the Delphi Technique in management and theory development applications in recent similar studies revealed several examples of note (Skulmoski, Hartman, & Kran, 2007; Linstone & Turoff, 2011;Brady, 2015; Avella, 2016; Strang, 2017).

- **To understand and generate ideas** - Delphi was used in get insights into local government policy design and implementation to understand the underlying basis for building policy.
- **To promote collaborative decision making -** It was also used in management and organisational development as a mechanism for improving working relationships and group decision making.
- **Build capacity** - The Delphi technique has also been used as a learning instrument – to determine whether the method could help employees at a Dutch Bank learn and understand technical information
- **Set Priorities -** The method has also been used to establish priorities in different sectors of the economy from private sector IT firms, retail to local government.

As was intended in this study new trends are emerging where Delphi is being applied (Brady, 2015; Avella, 2016; Strang, 2017). That includes,

- **Articulating Core Concepts** – developing clarity and meaning for concepts that are still to be adequately defined
- **Building Capacity** – allowing participants to co-create new concepts and solutions as enabled by the iterative nature and group communication process inherent in Delphi
- **Driving Change** – bringing new solutions to the forefront and stimulating debate and commitment among participants to reach convergence and action

Consequently, a Delphi study was the preferred research instrument for this research.

3.4.3 Data Collection Sample and Use of the Delphi Exercise in this Study

Eight (80) geographically dispersed experts were contacted with a response rate target of 15 – 20% consistent with most authorities' findings (Skulmoski, et al., 2007). It should be noted that there is no consensus found in literature on what constitutes an expert panel and the size of the Delph study panel (Linstone & Turoff, 2002; Skulmoski et al, 2007 & Linstone & Turoff, 2011). Delphi sizes found in literature vary from 4 to 171 (Skulmoski et al, 2007).

The criteria used to select the experts: included any of these credentials at a minimum; 10 years' experience in executing or advising on strategy execution at management level; published at least two articles related to the topic under study [strategy execution] in journals with an impact factor of 3 or more; having written and published a book in strategy execution. The data collection was conducted from February 2023 to August 2023.

- *Round One (1)* - statements/questions were presented raw as developed from the structured literature review and opinions were sought from the experts based on their personal experiences in industry / academia. This included both closed and open-ended statements/ questions. In this round thirty-one (n = 31) experts participated which equates to a response rate of 38,75%
- *Round Two (2)* - The responses of experts from round 1 were summarised and formulated into a series of more specific questions that participants were asked to comment on or respond to. This process had 25 ($n = 25$) participants, which equates to a response rate of 31.25%

Although Delphi Round 2 was within the target, the slightly lower response rate in Round 2 was attributed to the conflicting schedules that some of the participants who were largely C-Suite director level highlighted. Unfortunately, the researchers could not extend the submissions cut-off to suit their schedules.

Profile of the study participants – refer to Appendix A3 and Chapter 4: sections 4.1.1 to 4.15 for a detailed view of the study participants.

Pilot Round – the pilot questionnaire was sent to three respondents who all participated. Even experienced researchers conduct test runs (pilot studies) to make sure that questions are clear and will effectively solicit the desired information (Leedy & Ormrod, 2019). In this study, the pilot exercise was important to address three issues:

1. To eliminate ambiguous questions as well as generating useful feedback with respect to the quality of the questioning and the structure of the questionnaire.
2. To determine how long it will take to administer the questionnaire.
3. this trial run was also necessary to ensure a seamless Delphi Study Round 1 as the platform used for this study (https://rethinking-strategyexecution.com/) was purposely built for the research.

In conducting this pilot study, the researcher also asked the participants what they were thinking as they read and responded to the questions. This was meant to check the validity of the questionnaire. As expected, the pilot round revealed minor system glitches that we fixed and these included participants failing to open the survey fully and the survey not sending a confirmation email that the survey had been completed, even though it was showing in the database. The issues were then resolved. The pilot study also assisted the researcher in optimising the questionnaire (trimming questions and rephrasing). The participants were informed that this was a pilot study and agreed to participate.

Questionnaire Design and Likert Scales used in the Study: The questionnaire design followed four steps as guided by (Ekinci, 2015).

1. Establishing the required information and the target respondents/ participants.
2. Draft questionnaire preparation.
3. Sequence of questions.
4. layout of the questionnaire.
5. Piloting and assessing reliability of the questionnaire.

The rationale of moving from a 5-point Likert to a 7-Point Likert scale in Delphi Round 2 was that in Round 1, the researcher sought to make the process as simple and efficient as possible to encourage participation and the final round the 7 – point Likert scale questionnaire was designed to ensure the study participants reflect more carefully on their responses. The researcher was cognisant that the increase options in a 7 scale Likert scale was likely to cause fatigue hence it was left for the later round.

Consensus: In this study, a minimum of 70% agreement was considered consensus. This was based on Kendall's coefficient of concordance. Kendall's W is a consensus criterion representing a level of consensus between participants calculated along the mean rank and standard deviation (Habibi, et al., 2014). As such, it measures the degree of agreement on a specific factor / issue among participants. Below is the outline of the degree of consensus:

$W > 0.7$	Strong Consensus
$W > 0.5$	Moderate Consensus
$W < 0.3$	Weak Consensus

It follows W = 0.0 means no consensus and W = 1.0 means a perfect agreement. Kendall's coefficient is calculated as follows

$$W = \frac{12S}{m^2(n^3 - n) - mT} \quad \ldots [1] \qquad \text{where} \qquad S = \sum_{i=1}^{n} (R_i - \bar{R})^2 \quad \ldots [2]$$

W = Kendall's coefficient (a measure of agreement)

R_i – total ranks of a factor

n – number of questions / factors

m – numbers of participants

T – *in the denominator is a correction factor used when there are ties in the ranking if no tie (then the term mT = 0) as T = 0.*

Figure 3.4 on the next page summarises the theoretical framework to be used for the Delphi study.

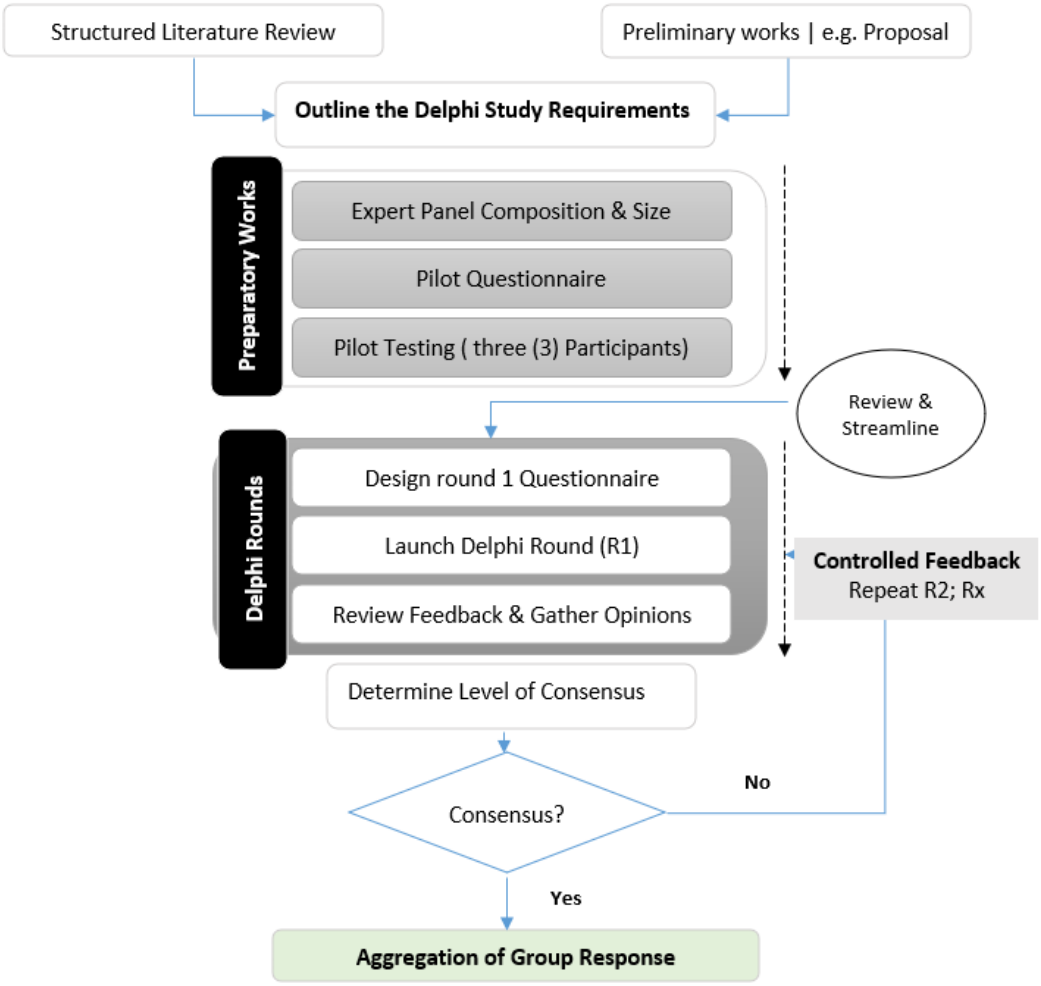


Figure 3.4 ***The Conceptual framework of the Delphi Technique Used in this Study***

3.5 Data Analysis

In real-life inquiry, the distinction between data gathering (in this case the Delphi study)) and data analysis is less absolute than in experimental, (Patton, 2002 as cited by Vohra, 2014). (Leedy & Ormrod, 2015), concurs and adds by clarifying that in most qualitative methodologies data interpretation begins almost immediately, and initial interpretations are apt to drive subsequent data collection. Consistent with the same thinking, data analysis (at least informally) for the qualitative part of this mixed study started in the data collection phase. The rationale being to avoid adding complexity to the data that was to be analysed in subsequent stages and to ensure the thought process and intertwined evidence is not lost or forgotten as the information base swelled. This early analysis also suggested certain patterns or dynamics in the phenomena being investigated, leading the research to seek additional information in an attempt to confirm, clarify or disconfirm the hypothesised patterns or dynamics (Leedy & Ormrod, 2015).

In practice Data Analysis combines, organising data, examining, identifying preliminary categories, coding, tabulating, identifying noteworthy patterns and combining evidence, (Yin, 2014). This study followed the same.

Qualitative Data Analysis: Even though the study was largely quantitative, the open-ended questions in Delphi round 1 were analysed using thematic analysis as prescribed by (Leedy & Ormrod, 2015; 2019). The purpose was to search for patterns or themes for further interrogation.

Quantitative Data Analysis: As most of the questions were closed, this study used primarily descriptive statistics and inferential statistics. A descriptive statistic is a value that is computed by analysing sample data and is used merely to describe some characteristic of that sample without making inferences about the larger population (Hatcher, 2021 p.17). This entails the computation of basic descriptive statistics such as the median, mean, and correlation coefficient for a set of data (Saldana, 2021). Descriptive statistics was used for analysing demographics via the use of charts (tables and graphs). Descriptive statistics was also used for testing for significance of the Delphi study responses.

Thematic analysis: was the core method used to identify, analyse, organise, describe and report themes found in the dataset. Thematic analysis was used to examine different perspectives and summarise key features of the data – highlighting similarities and differences hence creating useful insights (Nowell et al., 2017). This study followed Braun and Clarke

(2006) approach to conducting a trustworthy thematic analysis (Nowell, et al., 2017) which included:

(1) *familiarising with the data*: this involved repeated reading of the data in an active way seeking meanings and patterns.
(2) *generating initial codes*: this entailed initial production of codes to simplify and focus on specific characteristics of the data. That also included identified important sections of the text and attaching labels to index them for further analysis.
(3) *searching for themes:* once the list of codes was developed, this phased involved the sorting and collating of all potentially relevant coded data extracts into themes or significant constructs that link substantial portions of data together.
(4) *reviewing themes:* this entailed checking the data extract for each theme for a coherent pattern hence test the accuracy of the themes with respect to reflecting the meanings in the data set as a whole. As such, unwanted codes were discarded and relevant issues that required codes were added. Other codes were merged as necessary and other broken down into separate themes.
(5) *defining and naming themes:* at this stage each theme was further analysed and specific aspects of interest around that theme explored, there after a punchy name given for each final theme.
(6) *presentation of the findings.* The findings are presented in chapter 4 of this report and short direct quotes from participants were also included to aid understanding of specific discussion points of interest.

Quantitative Data Analysis: As most of the questions were closed, this study used primarily descriptive statistics and inferential statistics. A descriptive statistic is a value that is computed by analysing sample data and is used merely to describe some characteristic of that sample without making inferences about the larger population (Hatcher, 2021 p.17). This entails the computation of basic descriptive statistics such as the median, mean, and correlation coefficient for a set of data (Saldana, 2021). Descriptive statistics was used for analysing demographics via the use of charts (tables and graphs). Descriptive statistics was also used for testing for significance of the Delphi study responses.

3.6 Methodological Reflections

3.6.1 Quality of the Research (Issues of Validity and Reliability)

The research design and instruments used in this study have been framed to address the issues of rigour as is necessary for such academic work. Central to this work is the use of multiple sources of evidence – triangulation. Triangulation refers to using multiple, different approaches to generate better understanding of a given theory or phenomena (Turner & Cardinal, 2017). It follows 'understanding' – the design of an enterprise and then *strategy execution* is key to gaining knowledge about the critical research question (*What Enterprise Engineering principles and theoretical foundations can be harnessed for use in Strategy Execution?*). The basis of this triangulation-based research design is the acceptance that all research strategies and methods to an extent have limitations or are imperfect in some way. However, it can be argued that when these strategies and methods are applied in combination, the limitations may be reduced (or addressed) and hence better enhance the quality of the research outcome. This study sought to develop and / or extend theory. To achieve this purpose, it used mainly two strategies: a structured literature review and a Delphi study. (Yin, 2016), argues that the quality of research designs is done according to certain logic tests checking different aspects – trustworthiness, credibility, confirmability, and data dependability of the research. Four tests are presented. This study addressed these tests as outlined below,

a. **Construct Validity** (*the extent to which an instrument measures characteristics that cannot be directly observed or measured but is assumed to exist based on patterns in people's behaviour* (Leedy & Ormrod, 2015; 2019). This was addressed in data collection via the following measures.
    i. Use of multiple sources of data (Delphi questionnaires and extant literature of strategy execution and enterprise engineering)
    ii. Avoiding subjective judgements while interacting with Delphi participants. This refers to the judgements that tend to confirm the researcher's preconceived notions.
    iii. Establishing chain of evidence from literature; subject matter experts; and converged evidence to form the basis of the development.
    iv. The Delphi method by design allows construct validation via the subject matter expert interactions.

b. **Internal Validity** (*the extent to which the study enables the researcher to draw accurate conclusions or defensible cause and effect relationships between variables* (Leedy & Ormrod, 2019). This was addressed in the data analysis part (Yin, 2014) through the following measures which were done to create an auditable decision trail approach.

   i. To aid the integrity of the primary research instrument (the Delphi study) – at the onset of the study, the researcher documented the application of the Delphi technique - the protocols, define with justification the meaning of consensus, the outlined criteria and justification of any criteria used etc.

   ii. Thematic analysis was used to identify, analyse, organise, describe, and report themes found within data sets.

c. **External Validity** (*the extent to which the study results will apply to situations beyond the study itself* (Leedy & Ormrod, 2019). Put differently the extent to which the conclusions can be generalised to other contexts – regardless of the research method (Yin, 2016; Leedy & Ormrod, 2019). This was addressed in the research design and by the following measures.

   i. Use of representative sample of the Delphi participants (relevant disciplines and specialties in academia, industry with particular experience)

   ii. The theoretical insights that led to the conceptual framework were validated through the Delphi exercise rounds.

d. **Reliability** (*the extent to which the research strategy /method demonstrates that the operations of the study such as the data collection procedures can be repeated to yield the same results* (Yin, 2016). This is also addressed in data collection through the following measures (Arash et al., 2014; Brady, 2015; & Avella, 2016 Yin, 2016;)

   i. Outlining the research methods in easy-to follow workflow outlines

   ii. A Delphi Study protocol and database

   iii. Use of Conceptual models to outline the 'how' in data analysis and therefore the 'what and how' in theory development.

   The issue of credibility of the overall report was enhanced by peer review or study de-briefing of the overall report to provide an external check on the whole research effort.

3.7 Ethical Considerations

“Whenever human beings … with the potential to think, feel and experience physical or psychological distress at the focus of the investigation, researchers must look closely – during the planning strafe – at the potential ethical implications of their work” (Leedey & Ormrod, 2019). Even though this research is not directly investigating human beings this *research* methodology involves Delphi study participants who operate in real-world environment. As such, ethical clearance permission was sought from the University and granted. The ethical clearance no for this study is H22/03/25.

Informed consent was also sought participants and informants. No undue pressure was exerted to participants. The researcher merely acted as a facilitator and maintained – the right to privacy, confidentiality and copyright as required.

Chapter 4 – Results and Analysis

Science is about knowing; engineering is about doing

(Henry Petroski, 2006)

The chapter presents the findings from the Delphi study. This research aimed to understand how the success rate of Strategy Execution can be improved through the application of enterprise engineering principles and practices. To do that the study explored some research questions, which were derived from the critical research question (CRQ) presented in Chapter 1 of this study and repeated below.

> What Enterprise Engineering principles and theoretical foundations can be harnessed to improve the success rate of Strategy Execution?

The sub-questions explored are,

a) What are the issues /challenges with the current strategy execution frameworks?
b) To what extent can Enterprise Engineering principles and theoretical foundations be useful in developing a framework to drive strategy execution?
c) What are the key components of an Enterprise Engineering based Strategy Execution (EE_bSE) framework?

The presentation of the findings is therefore guided by these questions with the evidence substantiated in the appendices. The following sections start with an outline of the profile of the participants.

4.1 Demographics Profile of the Study Participants

4.1.1 Profile of the Study Participants

The average years of experience of the panelists was 24 years with a combined experience base of 745 years of knowledge. The participants were from eleven (11) countries spread across four regions of the world – Africa, America, Europe, and the Middle East (Canada, Namibia, Netherlands, Philippines, Singapore, Saudi Arabia, South Africa, Vietnam, USA, Saudi Arabia, United Kingdom, Zimbabwe). The experts were from various backgrounds and industries: academia, management consultants, engineering consultants, telecoms, manufacturing,

banking, IT, NGOs and engineering companies (distribution, tooling & support). Refer to Appendix A3 for a summarised view of the participant's profile. This view details their highest academic qualification, years of experience, speciality, background, industry, and current location.

4.1.2 Industry and Current Role/ Engagement(s) of Study Participants

Figure 4.1 below shows the roles assumed by the study participants (the Delphi experts) at the time of data collection. 81% (25 of 31) of the participants were executive leaders as such, their roles required in some way execution of some strategy or strategies, and of these 65% (20 of 31) were board members which can be construed to imply greater powers to influence strategy execution. See also Figure 4.1 below. 45% (14 of 31) of the participants were practitioners [that is they actively consult on and operationalise (executes) strategy for clients]

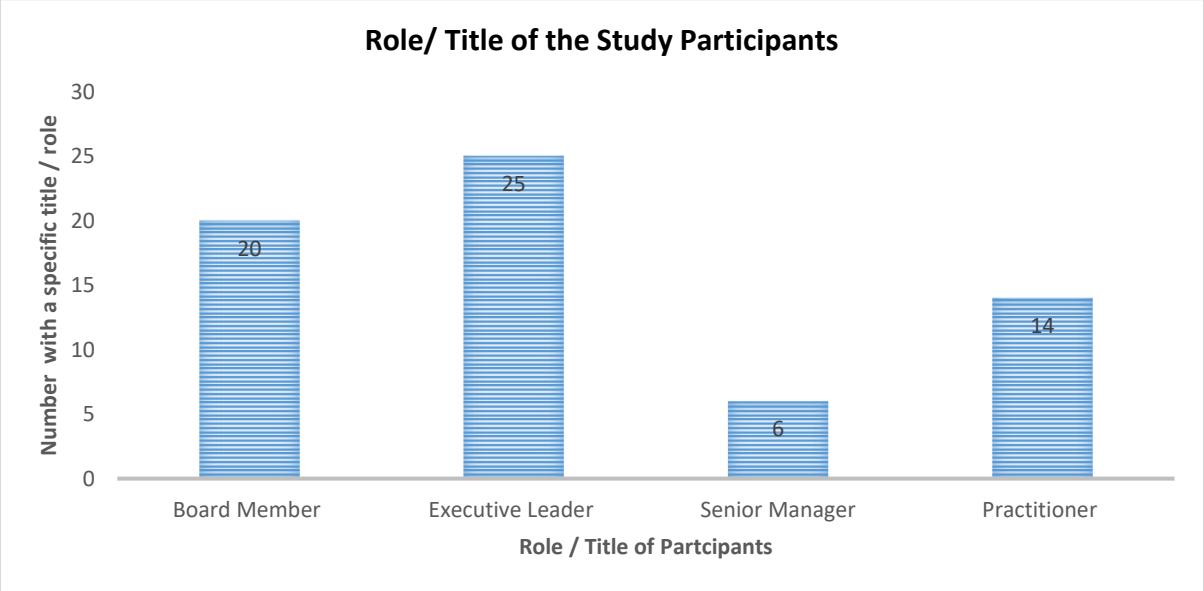


Figure 4.1 ***Roles of the Study Participants***

Note that some participants were both board members and executive leaders. With a few being practitioners as well as executive leaders. Note that some participants had dual roles for example being a practitioner and a board member of another entity at the same time.

Table 4.1 below also shows that most of the participants were the in private sector (private industry) with only 2 participants working for or doing work in government.

Table 4.1 Role and Industries of the Study Participants

Current role		Academia	Consulting	Industry (private)	Industry (NGO)	Industry (Government)
Board Member	*20*	2	1	12	4	1
Executive Leader	*25*	0	5	15	5	0
Senior Manager	*6*	3	0	2	0	1
Practitioner	*14*	2	9	3	0	0
Board Members (20 of 31)	65%					
Executive Leader (25 of 31)	81%					
Senior Manager (6 of 31)	19%					
Practitioner (6 of 31)	45%					

4.1.3 Years of Leadership / Senior Management Experience

This sub-section shows the Years of Leadership / Senior Management Experience of the study participants (the Delphi experts) at the time of data collection. Based on Table 4.2 below, 88% of the participants had 15 plus years of experience in Strategy Execution.

Table 4.2 Years of Experience of Study Participants

Years of Experience	5 – 10 years	11 – 15 years	16 – 20 years	21 - 25 years	26 - 30 years	31+ Years
Leadership /Senior Management	2	2	10	7	7	3
Leadership /Senior Management	6%	6%	32%	23%	23%	10%

4.1.4 Years of Experience Leading Strategy Execution

Figure 4.2 below shows the experience of the study participants in leading Strategy Execution.



Figure 4.2 ***Years of Experience Leading Strategy Execution***

A key takeaway is that 71% [22 of 31] participants had 15 plus years leading strategy execution efforts. Of these 11 (the highest group) were in the 16 - 20 years band while, zero (0) were in the 26 - 30 years band and four (4) in the 31 plus experience. This shows that on average the study participants were experienced in the subject matter under study – strategy execution.

4.1.5 Areas of Interest of Study Participants

Figure 4.3 below shows that the study participants (the Delphi experts) were not only working in roles that exposed them to strategy execution but had wide interest in the related elements of the strategic management landscape: strategy execution [18 of 31]; strategy formulation [17 of 31]; change management [12 of 31] and project management [11 of 31]. A couple of experts had interest in the enterprise engineering arena (enterprise ontology and enterprise architecture) however the number is relatively low as expected as this is new domain not known to many. This study is therefore one of the efforts aimed at exploring the application of enterprise engineering in management sciences – specifically in implementation methods.

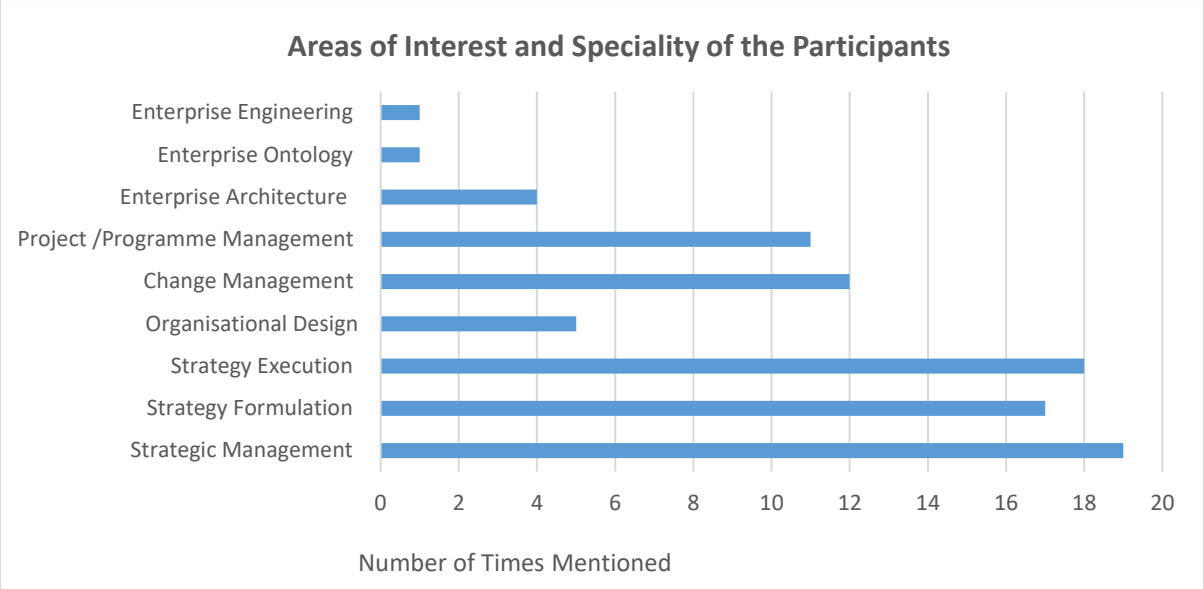


Figure 4.3 ***Areas of Interest and Specialty of Study Participants***

Further to this, it should also be noted that having been asked to declare their strengths in any of the six specialities [Strategy Formulation; Strategy Execution; Organisational Design; Strategic Management; Change Management and Project /Programme Management], 77% of the participants acknowledged that Strategy Execution, Project Management & Change Management was their area of strength.

Only six (6) participants had exposure to any of the EE domain elements given [Enterprise Engineering, Enterprise Ontology and Enterprise Architecture], again indicative of the infancy of this discipline.

4.1.6 Academic Qualifications of the Study Participants

Referring to Figure 4.4 below, all 31 the participants had at least a bachelor's degree. 24 of the participants had a master's degree or higher with six (6) of those holding a doctorate, two (2) of which were professors in Strategy Execution related speciality. It should also be noted that two of these 31 participants have authored books on strategy execution.

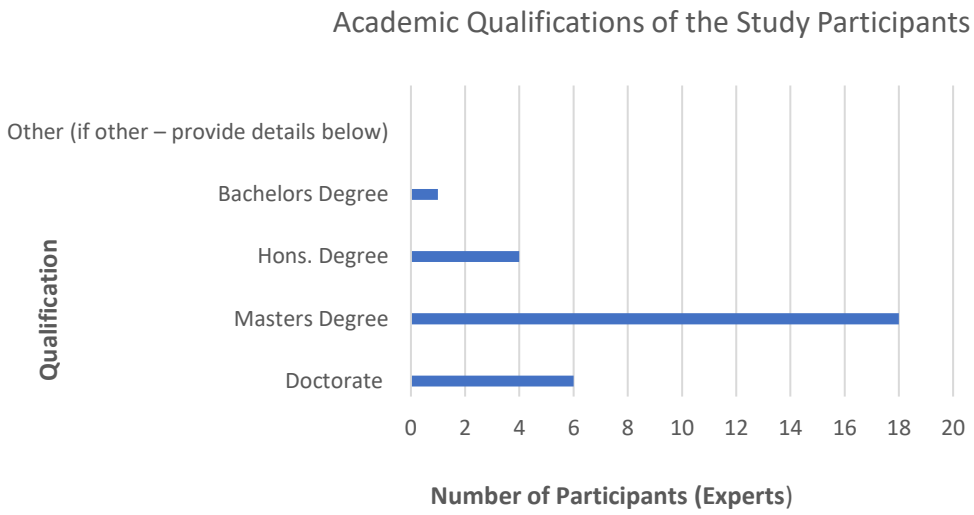


Figure 4.4 ***Academic Qualifications of the Study Participants***

4.2 Qualitative Data Analysis

Consistent with the methodology applied in this study, this section reflects on the initial concepts that were generated from the extensive review of extant literature on the strategy execution gap and the emerging discipline of enterprise engineering. It should be noted that this is a mixed study, as such, the presentation of the results will start with the qualitative part which was useful in the initial stages of this work (that is in structuring the research instrument and capturing the emerging themes from Delphi Round 1). The more detailed quantitative results will then be presented.

This section provides a brief overview of the study findings reflecting on the outcomes from the two stages of this effort: (a) Delphi Round 1 (DR#1) and (b) Delphi Round 2 (DR#2). Across these stages, a large amount of data was generated and that which is relevant for presenting the study results is appended. The findings will be presented around themes emanating from the research propositions. However, before elaborating on the findings – the researcher mapped the output of the Literature Review to the Delphi Round # 1 resultant and emerging themes as presented in figure 5. The input from the panel of experts in Round # 2 reviewed together with the literature resulted in the list of competencies that are required to aid Strategy Execution (refer to Table 4.3, below). The clustering of the competencies domains was based on the structured literature review which triangulated mainly the works of five strategy execution authorities Bossidy (2011), MacLennan (2011), Heesen (2016) and Bossidy & Boggis (2017).

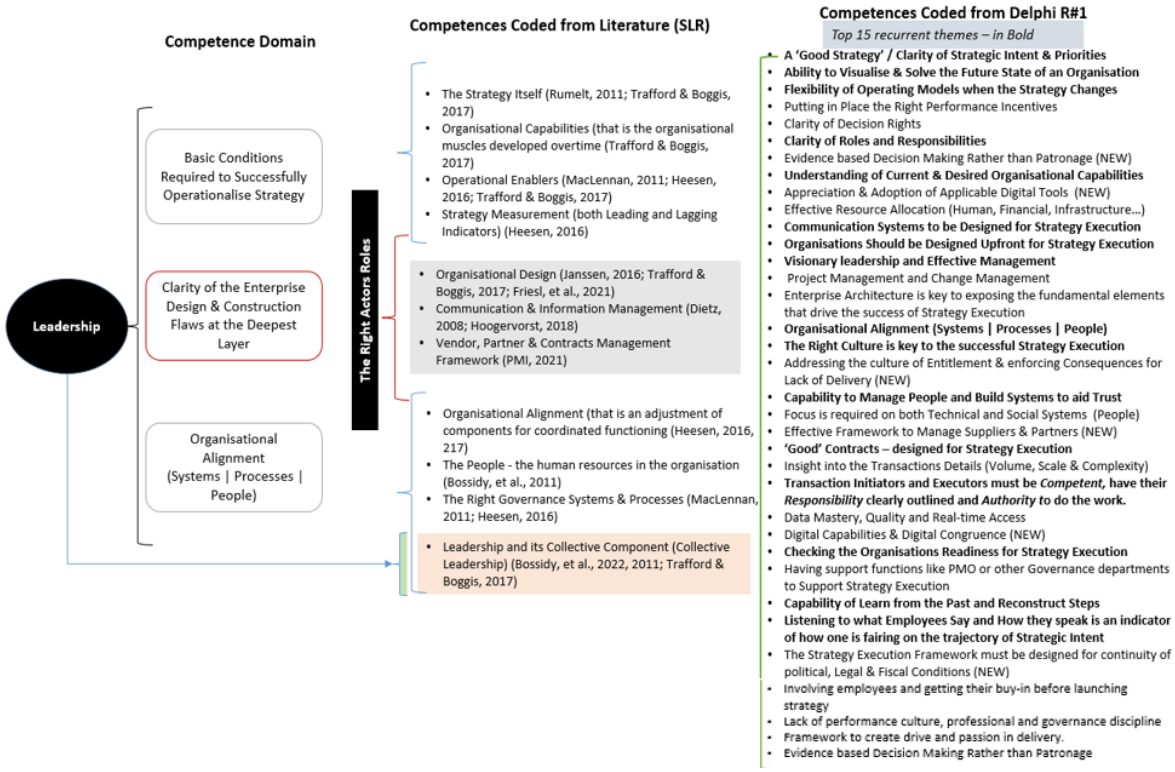


Figure 4.5: ***Mapping of the Output of the Literature Review to the Delphi R#1 Resultant themes***

The competencies from Delphi Round 1 were then aggregated into 7 clusters (see Table 4.3, on the next page).

Table 4.3: Competence Clusters and their related Specific Codes from the Delphi Study

Competence Cluster	Specific code as extracted from the Delphi R1
The Strategy Itself	• A 'Good Strategy' implementable strategy • Organisations (including the strategy) should be designed upfront for Strategy Execution • Flexibility/ Agility of Operating Models when the Strategy Changes • The Strategy Execution Framework must be designed from a Systems View and should have practical models built in for the continuity of political, Legal & Fiscal Conditions
People	• Transaction Initiators and Executors (that is the Actors) must be Competent, have their Responsibilities clearly outlined and Authority to do the work. • Listening to what Employees Say and How they speak is an indicator of how one is fairing on the trajectory of Strategic Intent • Clarity of Roles and Responsibilities • Involving employees and getting their buy-in before launching the strategy
Effective communication	• Communication Systems to be Designed for Strategy Execution • Framework to manage and counter resistance to change. • Framework for task coordination • Enterprise Architecture is key to exposing the fundamental elements that drive the success of Strategy Execution • Clarity of Decision Rights • Clarity of Strategic Intent & Priorities
Performance Culture	• The Right Culture is key to successful Strategy Execution • Lack of performance culture, professional and governance discipline • Addressing the culture of entitlement and enforcing consequences for lack of Delivery • Framework to create drive and passion in delivery. • Evidence based Decision Making Rather than Patronage
Organisational Enablers	• Putting in Place the Right Performance Incentives • Effective Resource Allocation (Human, Financial, Infrastructure…) • 'Good' Contracts – designed for Strategy Execution • Organisational Alignment (Systems | Processes | People) • Appreciation & Adoption of Applicable Digital Tools • Having support functions like PMO or other Governance departments to Support Strategy Execution
Organisational Capabilities	• Understanding of Current & Desired Organisational Capabilities • Organisational Alignment (Systems, Processes, People) • Project Management and Change Management • Capability to check the Organisations Readiness for Strategy Execution • Capability to Learn from the Past and Reconstruct Steps • Digital Capabilities & Digital Congruence (NEW) • Data Mastery, Quality and Real-time Access • Effective Framework to Manage Suppliers & Partners (NEW) • Capability to have insight into the Transactions Details (Volume, Scale & Complexity)
Leadership	• Visionary leadership and Effective Management • Ability to Visualise & Solve the Future State of an Organisation • Capability to Manage People and Build Systems to aid trust

Table 4.4 below summarises the competence domains outlined in Table 4.3 as themes and shows their link back to sub-question # 1 via two constructs:

(1) Strategy Execution Success Elements and,

(2) Issues / Challenges of current Strategy Execution Frameworks

The same linkage is shown for sub-question 2 and 3.

Table 4.4 Summary of Main Themes Mapped to the Research Sub-questions

Research Sub-questions	**Construct**	**Theme**
1. What are the issues /challenges with the current strategy execution frameworks?	1. Strategy Execution Success Elements 2. Issues / Challenges of Current Strategy Execution Frameworks	1) The Strategy Itself 2) People (the Team) 3) Effective Communication 4) Performance Culture 5) Organisational Enablers 6) Organisational Capabilities 7) Effective Leadership
2. To what extent can Enterprise Engineering principles and theoretical foundations be useful in developing a framework to drive strategy execution?	1. Useful Enterprise Engineering Principles 2. Enterprise Design & Strategy Execution	1) Ontological View of an Organisation (the 'White Box' perspective) 2) The Construction Model 3) Enterprise Construction Flaws (ECFs) 4) Enterprise Design / Re-design Requirement
3. What are the key components of an Enterprise Engineering based Strategy Execution (EE_bSE) framework?	1. EEbSE framework pillars	1) EEbSE Model Requirements 2) EEbSE Model Components

The findings for research sub-questions 1, 2, and 3 will be presented in this chapter and the final question will be further explored and answered in the next chapter (Chapter 5: EE_bSE Framework).

For the full view of the Delphi Round 1 Results per section as outlined in the questionnaire refer to Appendix D and E. The results are tabulated for ease of reference.

The next sections will explore each sub-question as presented above via the related construct and themes. Section 4.2.1 below start with Research Sub-question 1, construct # 1

4.2.1 Strategy Execution Success Elements

Figure 4.6 shows outcomes from Delphi Round # 1: Process [Infological Level questioning and results]. When the panel of experts were questioned on the basic conditions of any successful strategy execution effort, several questions were asked – Refer to Appendix B1 (Delphi Round #1) questionnaire. In this round, (round #1), surprisingly the participants did not agree on the importance of organogram (organisational structure); key performance indicators (KPIs) and use of a balanced scorecard and IT / Digital capabilities. See the radar diagram – Figure 4.6 below. As presented in Chapter 3, note that consensus was measured at 70% agreement among the participants. On the contrary there was overwhelming agreement on the importance of *communication and information flow*; *enterprise architecture*; *project and change management; the 'right' culture* and *visionary leadership.* As an example – the need for the 'right culture' was mentioned and emphasised by almost all participants. In responding to one of the open-ended questions ['In your view why is strategy execution an ongoing challenge in most enterprises?] one of the participants [Participant 4] was blunt "… poor culture and lack of cohesion". While another participant [Participant 19] citing Peter Drucker the renowned Austrian - American management consultant and author, lamented "…because culture eats strategy for breakfast – that is, we [meaning business leaders] build strategy but we don't [sic] have the organisational culture to deliver on it".

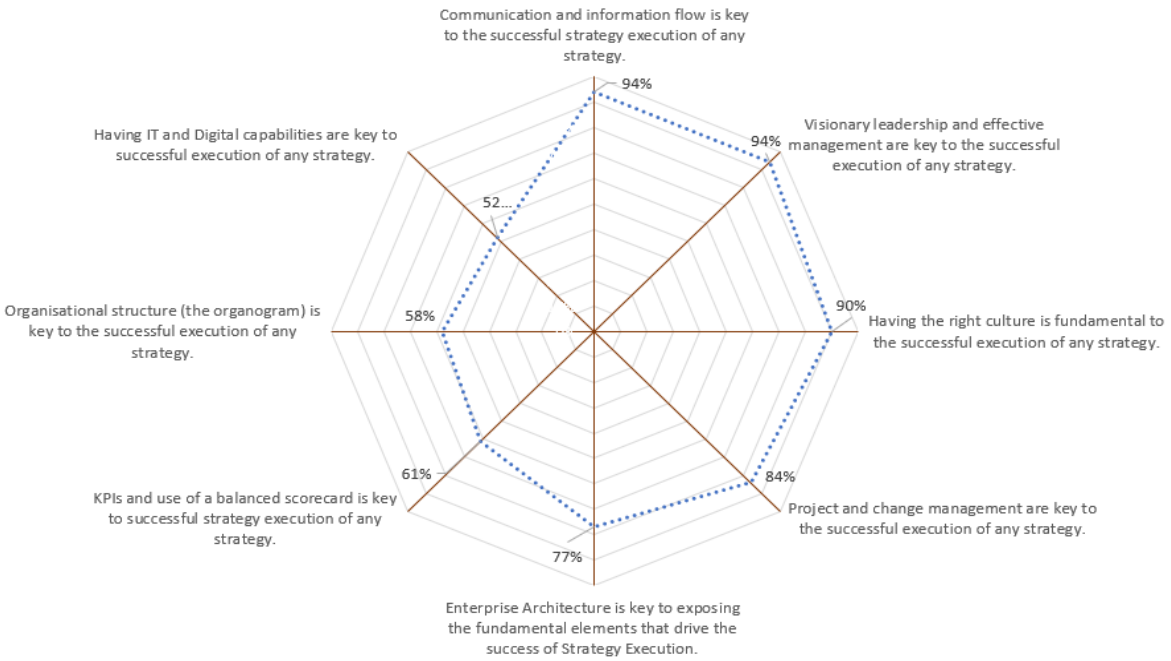


Figure 4.6 ***Delphi R#1 Results on the Extent of Consensus of Experts on the Basic Conditions of Success of any Strategy Execution Effort***

Still on SE success elements, Figure 4.7 below provides insights into some elements that experts did not agree in Delphi R1 but managed to get acceptable consensus in Delphi R2. The participants agreed on all elements except on the feasibility of successfully implementing a 'Bad Strategy' assuming the Enterprise is well designed. This suggests that the strategy itself is central to the implementation efforts. This construct will be further elaborated in the discussion part of this write-up (Chapter 6). The importance of reviewing the organisation structure and ensuring flawless constructs was also overwhelmingly validated (96% and 92%) respectively.

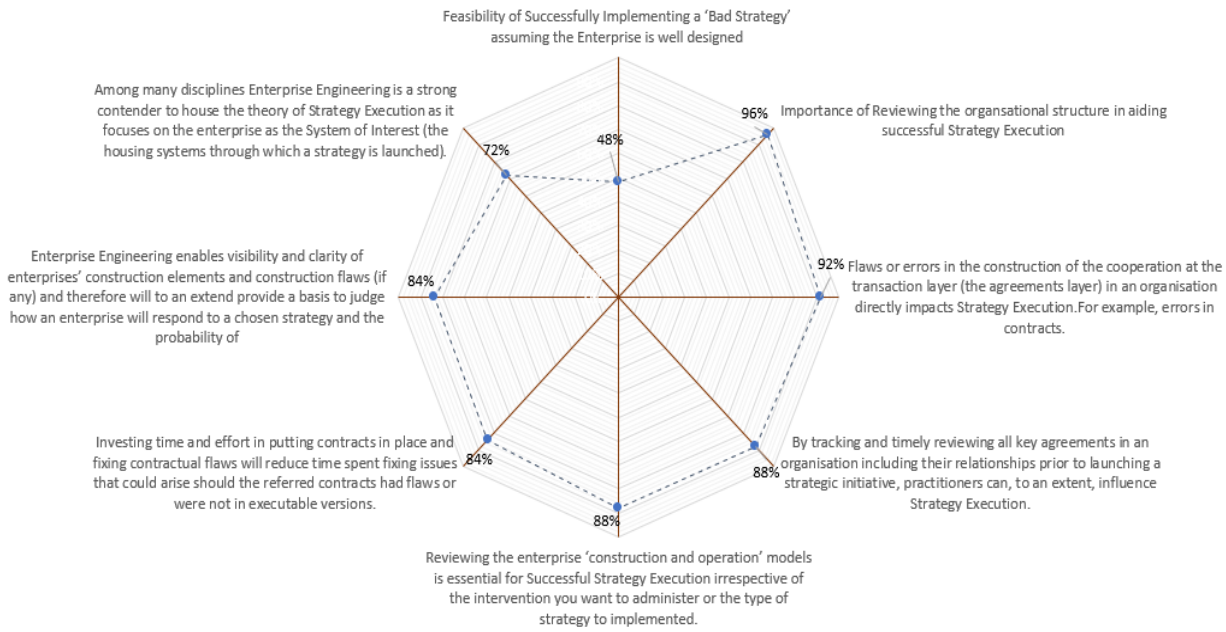


Figure 4.7 ***Results of Constructs that did Not Achieve Consensus in Round 1***

Figure 4.8 below shows the outcome of themes that came out of Delphi R1 and were validated by the participants in Delphi R2. As shown in Figure 4.8 there was an overwhelming consensus on all the 10 constructs with all experts agreeing [indicating a score of 5; 6 or 7 on the 7-point Likert scale] on three items listed below:

- Capability to Visualise and Solve the Future State of the organisation (i.e., Clarity of Vision, Clarity of Goals and Clarity of the Trajectory to the Desired State)
- Ability (Competence) to develop a clear & compelling Strategy 'A Good Strategy' (i.e., convincing set of strategic choices of 'Win' to remain sustainable)
- Importance of a clear understanding of Existing Capabilities on the Current Architecture & the Capability to understand what is required for the desired Future State & what capabilities should be retired.

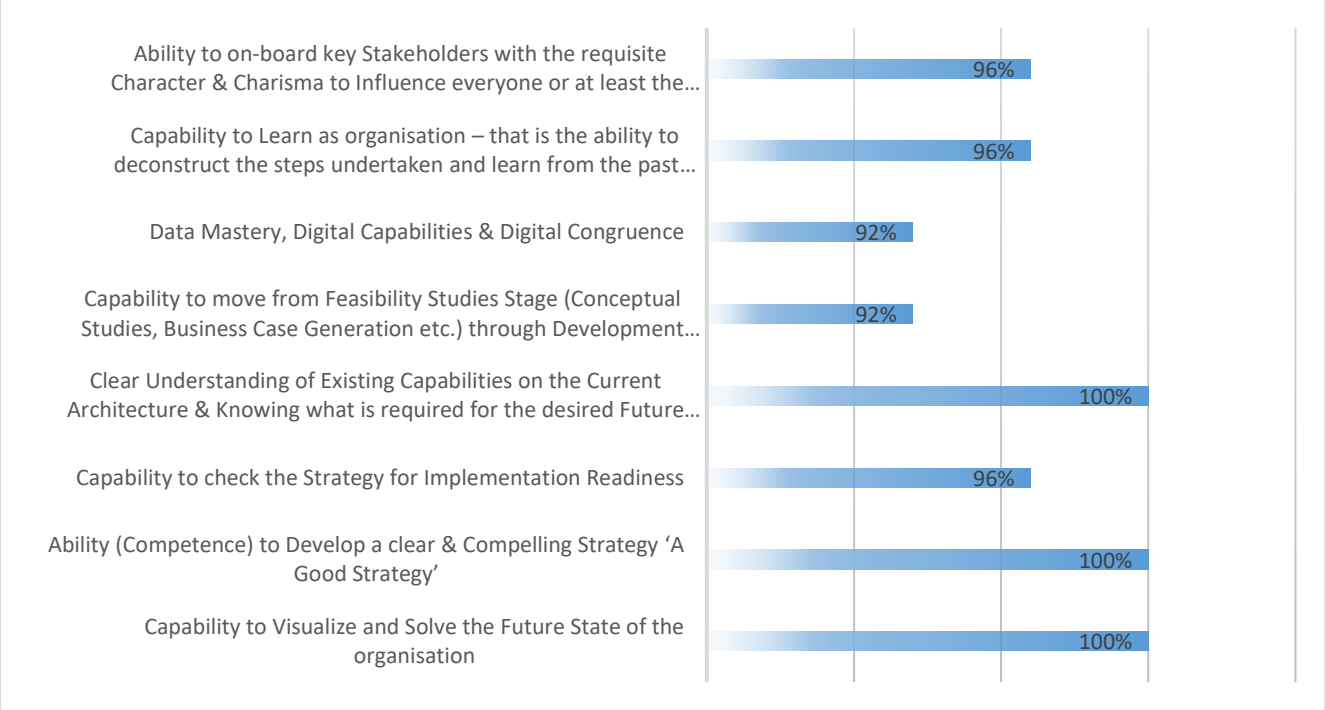


Figure 4.8 ***Results on Strategy Execution Themes that Emerged from the Delphi Exercise***

4.2.2 Issues / Challenges of current Strategy Execution Frameworks

Below are the themes that emerged from the study as show in Table 4.2 and 4.3 (refer to the first part of section 4.2.

- The Strategy Itself
- Effective Communication
- Performance Culture
- Organisational Capabilities
- Organisational Enablers
- People (the Team)
- Effective Leadership

The sections below outline the participants perspectives and voices on each theme. The central questions are (a) why strategy execution is ongoing challenge in most enterprises and (b) the related limitations of current strategy execution frameworks (See, Section G of Appendix A).

4.2.2.1 Perspectives on the Strategy Itself

The participants' perspectives of the issues / challenges related to 'the Strategy itself' are shown in figure 4.9 below. The findings below outline the main sub-themes that emerged from the Delphi study.



Figure 4.9 ***Perspectives of the Influence of 'the Strategy itself' on Execution***

The dominant sub-themes that came up include *poor quality of strategic objectives* and launching a *strategy without an implementation plan*. By way of an example, on poor quality of strategic objectives, Participant 7 (P7) put it directly, "… the immediate limitation of current strategy execution framework is the absence of a well-defined strategy and a strategy blueprint [with] … clearly defined phase[s] and timeline[s]". Participant 13 (P13) added " … strategies are badly formulated and rushed". These statement illuminates and summarises the two dominant themes. The other two themes that came up include *lack of agility/ flexibility of the strategy* and/ or the *strategy is not practical / linked to reality (or ignoring context).* Participant 11 (P11): argued "… the issue is that strategies are built on a set of assumptions that are no longer valid – there is a need to trigger a pivot". Participant 1 (P1) concludes the case for agility – there is a need to have "… the ability to accept that when the context changes as strategy is executed – the approach to [strategy] execution need to also [change] … and continually renewed (sic)"

4.2.2.2 Effective Communication

The participants' perspectives on the issues / challenges related to 'Effective Communication' are shown in figure 4.10 below. The findings below outline the main sub-themes that emerged from the Delphi study. The dominant sub-themes are *clarity & quality of communications, the strategy not communicated to all* and *unclear and / or misaligned KPIs*. Participant 2 clarifies; " [there is need of] clear and concise communication channels to communicate progress and milestones [to help] maintain motivation and acceptance of change…" Participant 5 (P5) summarises these themes "… there are no reporting tools or data analytics that measure the strategy execution daily or monthly. The reporting platforms do not capture or measure the strategy execution".

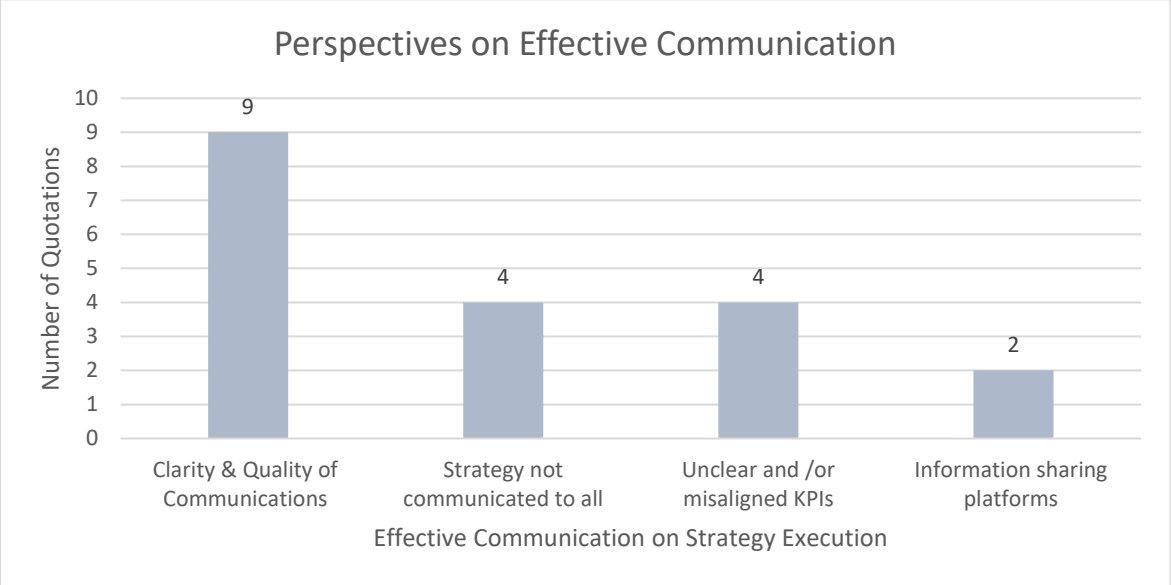


Figure 4.10 ***Perspectives of the Influence of Effective Communication on Execution***

4.2.2.3 Organisational Capabilities

The participants, perspectives of the issues / challenges related to 'Organisational Capabilities' are shown in figure 4.11 below. The findings below outline the main sub-themes that emerged from the Delphi study.



Figure 4.11 ***Perspectives of the Influence of Organisational Capabilities on Execution***

The dominant sub-themes are (a) *project, programme, and portfolio management;* (b) *ability to understand existing and identify future capabilities'* (c) *systems thinking* and (d) *change / transition management.* Participant 16 (P16) argued that "… change capability (change manager) and the project management office (PMO)" are key capabilities for strategy execution. While Participant 1 (P1) emphasises the need to self-review capabilities before execution – "there is a need to have the ability to understand the capabilities needed to operate in the future state and assessing the degree to which they exit, [while at the same time seeking to] understand the capabilities embedded in the current state that potentially could anchor the organisation to its future state".

4.2.2.4 Organisational Enablers

The participants' perspectives of the issues / challenges related to 'Organisational Enablers' are shown in Figure 4.12 below. The findings below outline the main sub-themes that emerged from the Delphi study.

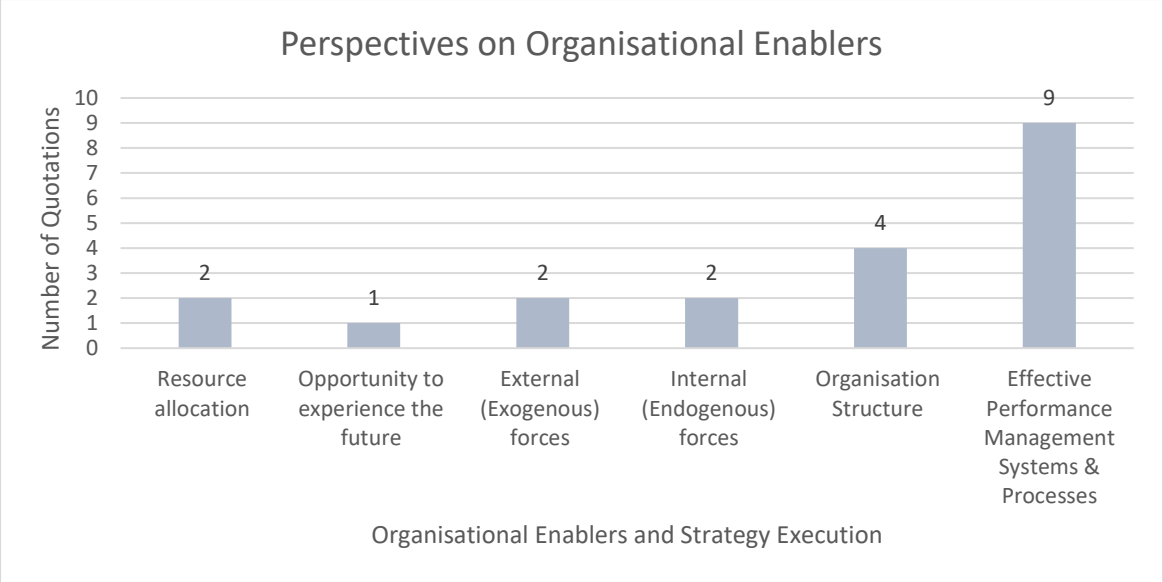


Figure 4.12 ***Perspectives of the Influence of Organisational Enablers on Execution***

The dominant sub-themes in this category were (a) *effective performance management systems and processes* and (b) the *organisational structure.* Participant 6 (P6) puts it plainly in a catch-all statement "there is a need for a clear organisational structure linking people to key strategic themes, clear KPIs and timelines linked with the right incentives to drive performance" Participant 9 (P9) advocated for "… the effective use of a balance scorecard".

4.2.2.5 Organisational Culture

The participants' perspectives on the issues / challenges related to 'Organisational Culture' are shown in Figure 4.13 below. The dominant sub-themes that emerged from the Delphi study are (1) lack of an implementation culture; (2) related to item (1) lack of alignment of the desired culture to the strategic intent (the strategy to be executed), and (3) resistance to change. It was also highlighted that leaders (4) fail to appreciate the impact of culture when operationalising strategy. Some perspectives from the participants (participants 4, 10, 12 and 20) on this sub-theme are outlined below.

- P4: "Culture trumps strategy. If the culture is populistic, emotional, and ideological rather than professional evidence and based ideas - it is a dead horse (sic)"
- P10: "No appreciation or addressing of the emotional impacts of organisational change and this is [due to] insufficient pre-execution focus on cultural improvements. [Further

to this] … most strategy execution frameworks are led by consulting resources who do not understand the relationships and culture at the lowest level of the organisation".

- P12: "… softer elements of culture and mindset are not given that much importance in [strategy execution]"
- P20: was more direct "… there is too much emphasis on planning and not enough on execution and not enough importance is placed on organisational culture - culture is very (sic) important in strategy execution"

These perspectives are just a sample of an element that triggered emotional responses. These types of responses obligate the researcher to further zoom into the details of this element. Accordingly, the subsequent chapters in this study will interrogate what lies underneath the 'culture issues' guided by the theoretical lens of this study – the *enterprise ontology theory*



Figure 4.13 ***Perspectives of the Influence of Organisational Culture on Execution***

4.2.2.6 People (the Team)

The participants' perspectives of the issues / challenges related to 'People (the Team)' are shown in Figure 4.14 below. The dominant sub-theme that emerged from the Delphi study is the issue and requirement of a 'competent (skilled) team or human resources (people). Two other issues that were mentioned with emphasis include the need for (1) clarity of roles and responsibilities and (2) the requirement of an inspired and motivated team. Some perspectives from the participants (participants 1, 4, 17 and 30) on this sub-theme are outlined below with

participant 2 being blunt on this matter and linking the 'people issue' back to organisational culture.

- P1: "… too strong (sic) focus on financial results and less on people development / social skills".
- P4: "… a combination of deficient capacity, competency and commitment in a culture of wanting and demanding to share in prosperity without contributions to create it]"
- P17: " there is an assumption that organisations are deterministic, machine like (when people are at the core)]"
- P30: "there are no clear roles and responsibilities for its (strategy) implementation]"

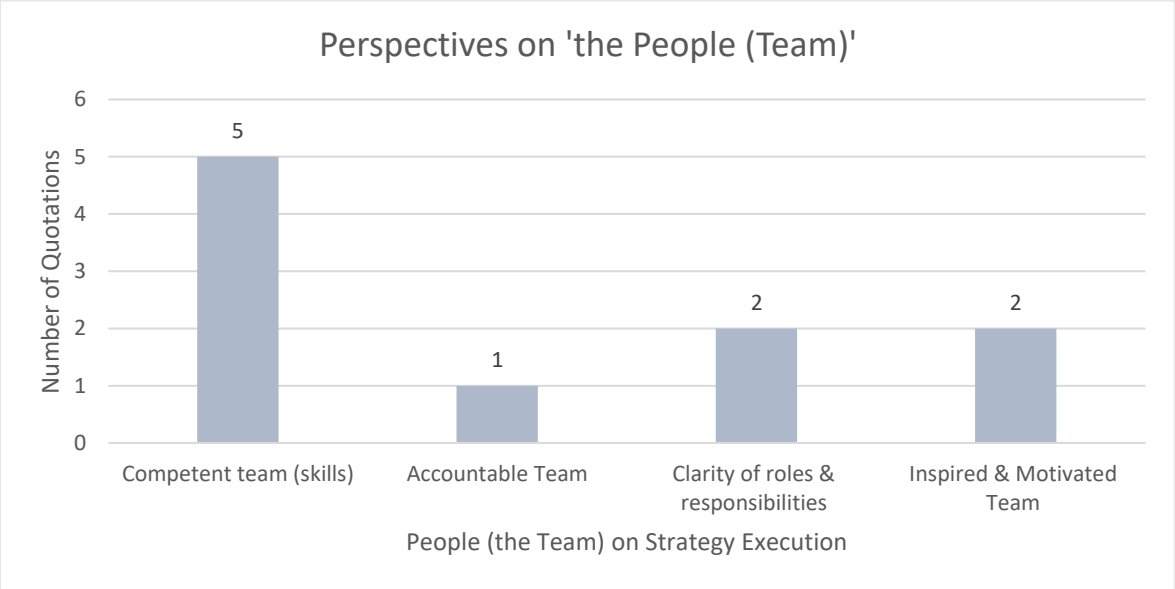


Figure 4.14 ***Perspectives of the Team (People) on Strategy Execution***

As per the perspectives outlined above, this is another sub-theme that triggered highly charged responses and as required will be further explored in the next chapter.

4.3.2.7 Effective Leadership

The participants' perspectives on issues / challenges related to 'Leadership' are shown in Figure 4.15 below. The dominant sub-themes that emerged from the Delphi study include (1) Leadership lack of understanding of the complexity of strategy execution, (2) lack of collective

leadership in the implementation stage and (3) limited focus on strategy execution relative to strategy formulation.



Figure 4.15 ***Perspectives of the Influence of Effective Leadership on Execution***

Three other issues that were mentioned with emphasis include the need to (4) delegate leadership to lower levels, (5) the absence of inspirational leadership and (6) the lack of leadership that respects and understands people. Some perspectives from three participants (participants 1, 3, 5, 19, and 28) on this sub-theme are outlined below.

- P1: "execution is delegated to people who do not have the power or influence to make things happen"
- P3: "lack of coherent leadership in execution".
- P5: "lack of Inspirational and motivational leadership to convince the organisation that the strategic vision is sound and will lead to positive outcomes at the individual level]"
- P19: "not enough emphasis on leadership creating a vision, accountability and empowerment of the staff (people management)]"
- P23: "leaders *talking the talk* rather than '*walking the talk*"
- P28: "not enough emphasis on leadership creating a vision, accountability and empowerment of the staff (people management)]"

Leadership is another sub-theme that came out strongly and will be interrogated in the next chapter.

4.2.3 Enterprise Design & Strategy Execution

This construct was addressed by reflecting on insights from three categories of questions in the two successive Delphi rounds.

a. Round 1: Perspectives on Enterprise Engineering and Strategy Execution – See Figure 4.16
b. Round 2: Perspectives on Organisational Alignment & Strategy Execution - See Figure 4.17

On item (a), the participants were asked to indicate their level of agreement or disagreement with the extent to which the success of strategy execution is dependent upon the design of the enterprise. Wherein the design refers to all the facets of an enterprise (e.g., processes, structures, governance, etc.) and their relationships. Refer to Section B of the Delphi Round 1 in Appendix B1. The results are shown below in Figure 4.16.

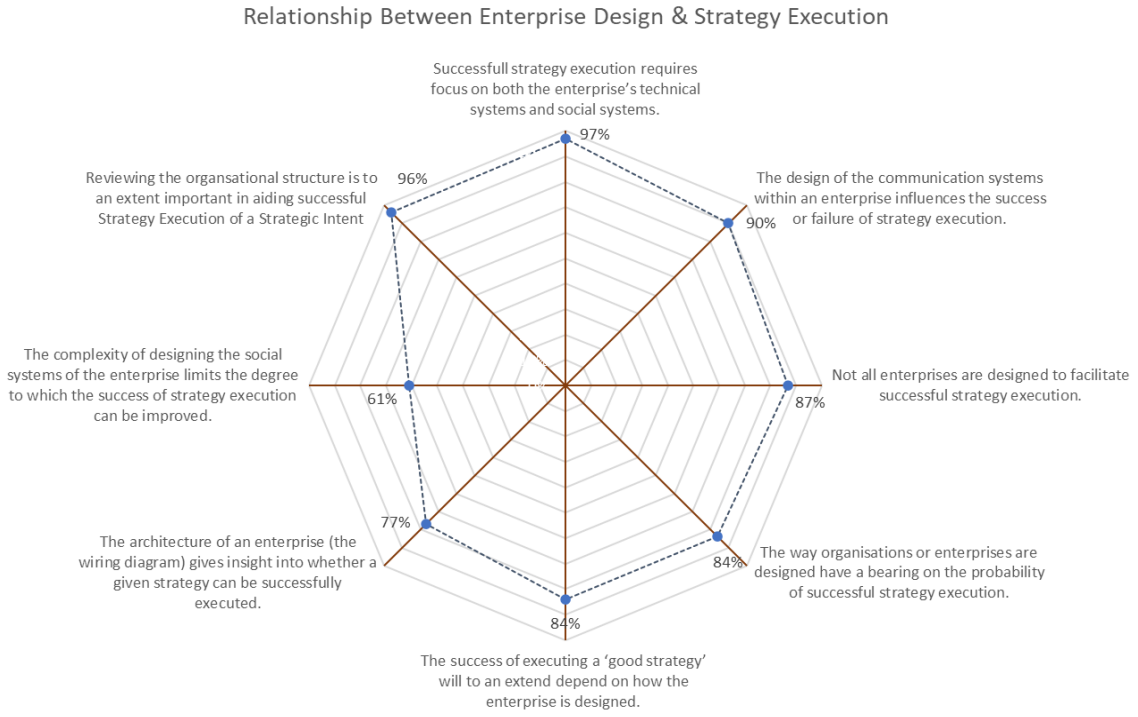


Figure 4.16 ***Perspectives on the Relationship between EE & SE***

Overall, the experts agreed that there is a relationship between enterprise design and strategy execution. An overwhelming agreement was reached in Delphi Round 1 on the criticality of designing communication systems and the overall organisational design as outlined in Figure 4.17, below. There was also an agreement that not all enterprises are designed to facilitate Strategy Execution implying the converse is true – that an enterprise should be designed for strategy execution. The experts could not entirely agree on whether social systems could be fully designed for strategy execution, and this is consistent with the black box mentality, which will be reflected on in the next section.

Item (b) - the other element tested the relationship below enterprise engineering and strategy execution and that was tabled in Delphi Round 2. There focus was on organisational alignment of various systems required for strategy execution. Refer to Section E in Appendix B2 and Appendix D (Delphi Round 2 – Raw Data Analytics Dashboard. Figure 4.17 below, summarises the results.

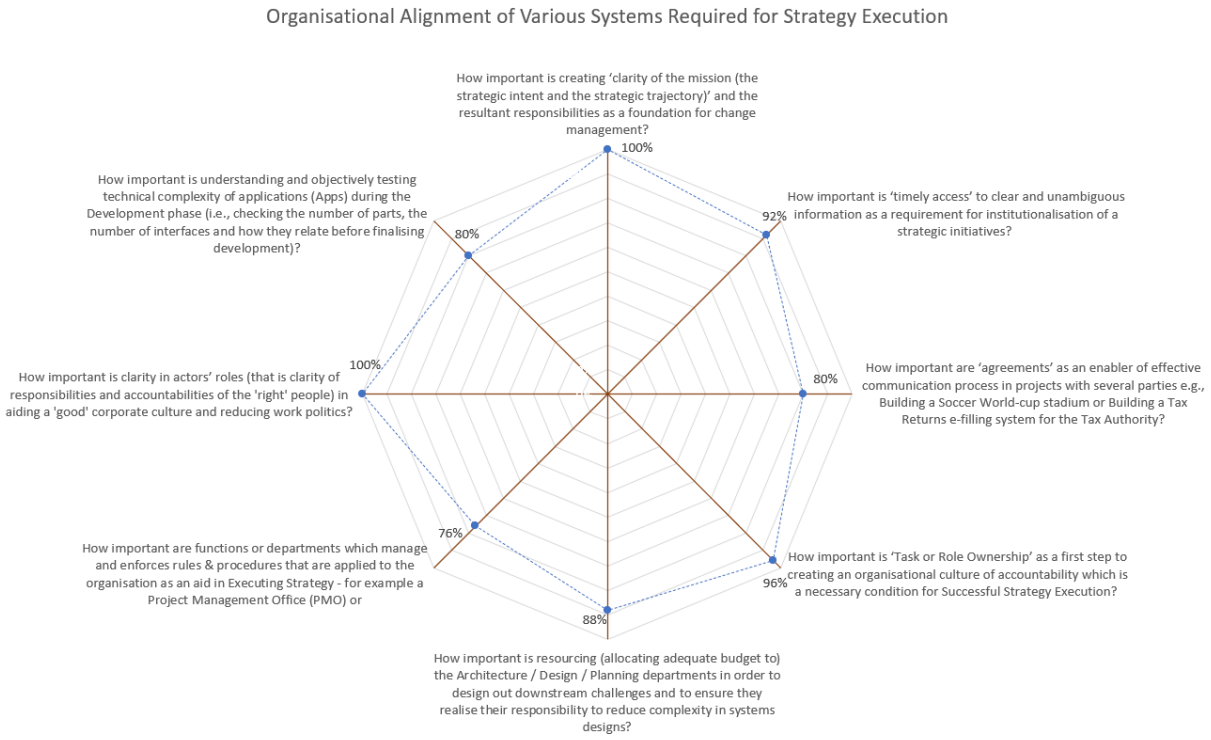


Figure 4.17 ***Perspectives on Organisational Alignment & Strategy Execution***

There was agreement among the participants on all the eight (8) elements tested with two (2) elements having 100% consensus i.e., (a) clarity of mission [strategic intent and the related strategic trajectory]and (b) importance of clarity of roles, responsibilities, and accountabilities. The importance of 'task ownership'; 'timely access to clear and unambiguous information' and resourcing of key departments also scored high on the consensus scale.

4.2.4 Useful Enterprise Engineering Principles

This section presents results of specific elements of Enterprise Engineering which the Delphi participants agreed to be useful to close the Strategy Execution gap. The radar chart (Figure 4.18) below summarises level of consensus on the case (the usefulness) for Enterprise Engineering in general with Figure 4.19 (the column chart) focusing on the level of consensus

on some foundational issues of Enterprise Engineering. Refer to Delphi R 1, section D for Figure 4.18 (Appendices B1 and C).

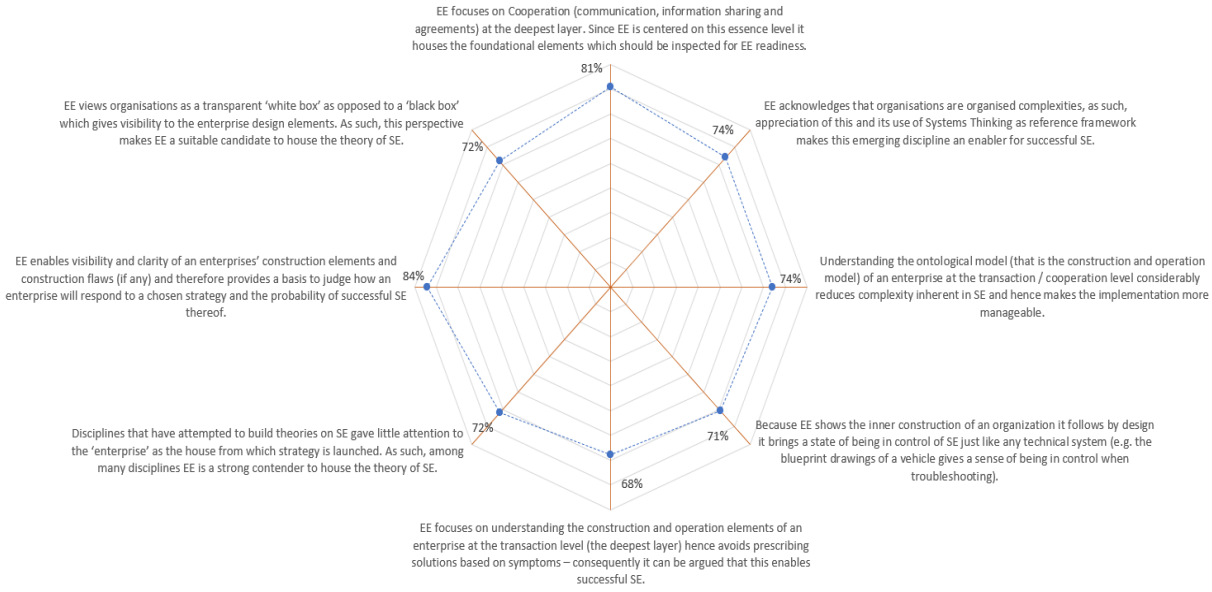


Figure 4.18 ***Perspectives of the Potential of Enterprise Engineering***

It is evident from above that the study participants strongly feel there is value in making use of enterprise engineering principles in strategy execution as the participants scored most of the attributes (7 of 8) above 70%. Of interest is the appreciation of two critical elements of EE that scored 81% and 84% respectively i.e., (a) the focus on cooperation (communication, information sharing, and agreements) at the ontological layer and (b) the capability of EE in bringing visibility and clarity of enterprise construction elements and related flaws (in other words the capability to expose the blueprint).

Based on the consensus cut off number used (70%), there was no agreement on the capability of EE to individually enable successful strategy execution even though 68% of the participants agreed that its focus on the transaction level helps avoid prescribing SE solutions based on symptoms.

Figure 2.19 below shows the study participants views on the importance of clarity of an organisation's construction at the deepest layer (the Ontological level). Refer to Delphi R#2 section C (Appendices B2 and E).

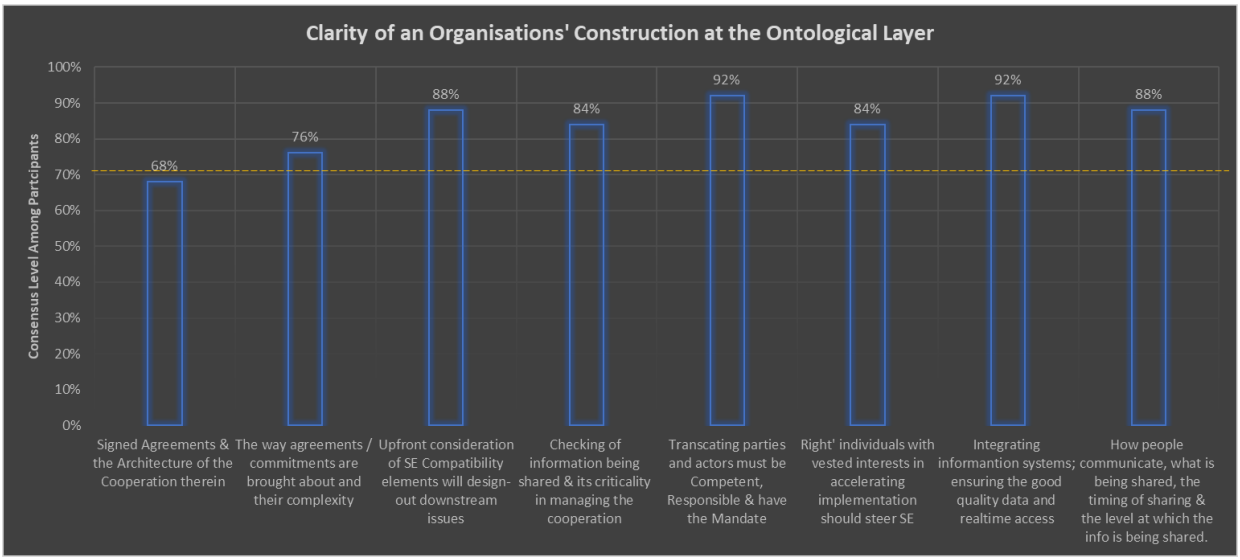


Figure 4.19 ***Perspectives of the Importance of Clarity at Ontological Layer***

As shown above, signed agreements and the architecture of the cooperation just missed the consensus mark (scoring 68% against a target of 70%). This could be attributed to the lack of appreciation of the link between agreements (contracts) and the inner workings of an organisation (i.e., the construction and operation model). Nonetheless, asked the same questions differently 76% of the participants agreed that 'Transactions' (that is the way commitments / agreements) are brought about and the complexity of the transactions (scale, number, interfaces, actors & stakeholders involved) has a direct bearing on the complexity of the Strategy Execution effort. Other aspects that achieved consensus include,

- Upfront consideration of SE compatibility elements before execution – 88%
- Checking the information being shared and its criticality – 84%
- The importance of competent, responsible, and mandated transaction actors – 92%
- Having the right people (individuals) with vested interests to steer execution – 88%
- Integrating information systems and ensuring real-time good quality data - 92%
- Checking how people communicate, what is being shared, the timing of the information, and the level at which the information is shared – 84%

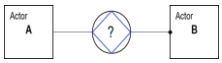
All these are ontological considerations that impact the inner workings of the enterprise.

4.2.4 Experiences of some Organisational Elementary Construction Flaws (ECFs)

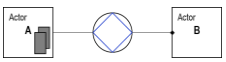
This section his section explores experiences of Organisational Elementary Construction Flaws (ECFs) in practice. This section was meant to test if the panel of experts had experienced a sample of the construction flaws or errors that enterprise engineers argue to be the root causes

of challenges in organisations. A sample of 8 of the 22 errors referred to in Section 2.5 in Chapter 2 of this study were tested with Delphi expert panel. The acknowledgement or exposure to these flaws/ errors were asked by way of a typical scenario, that covers the error to avoid making the error obvious to the experts. These questions are shown in figure 4.21, below. Refer to Chapter 2 of this study for the ECFs and Delphi R#2 section E (Appendices B2 and E). It can be seen that at least 40% (10 participants) had witnessed some of the referred to errors . The dominant errors in this view are shown below. Two examples of the error picked from this study are (a) *Unclear Transaction* – error number 21 as presented in Section 2.5 in Chapter 3 of this study, and (b) *Overlapping Initiator* – See excepts below for the detailed error description.

- ***Scenario A***: *In my current or previous work, I have witnessed a scenario where two parties to a transaction sign an agreement with supposedly clear deliverables but upon delivery, the client side (the requester) is totally unhappy or feels he was not heard. (80 % of the Round 2 participants witnessed this)*

ID	Elementary Construction Flaw (ECF) / Error	EE Notation	ECF Description and Application Explanation
21	**Unclear Transaction** (Unclear Agreements):		This error arises in scenarios wherein two parties agree on a transaction but upon delivery, the requester (Actor Role A) is not happy with the deliverables from Actor Role B (the executor). Even though the parties: the initiator and the executor, thought they had an agreement, a close analysis shows they had a misunderstanding. Put differently, the agreement was not structured with clarity to enable uncontested performance from both parties.

- ***Scenario B***: *In my experience I have seen different executives working on the same strategic initiative unknowingly, hence costing the organisation precious executive time and resources. (64 % of the Round 2 participants witnessed this)*

ID	Elementary Construction Flaw (ECF) / Error	EE Notation	ECF Description and Application Explanation
08	**Overlapping Initiator** (Double Requestor)		This error relates to transactions started by different actors without them being aware of each other's initiatives. As such, the transactions will be performed twice costing unnecessary efforts and resources. In other cases, it confuses the executor "…someone already asked for this".

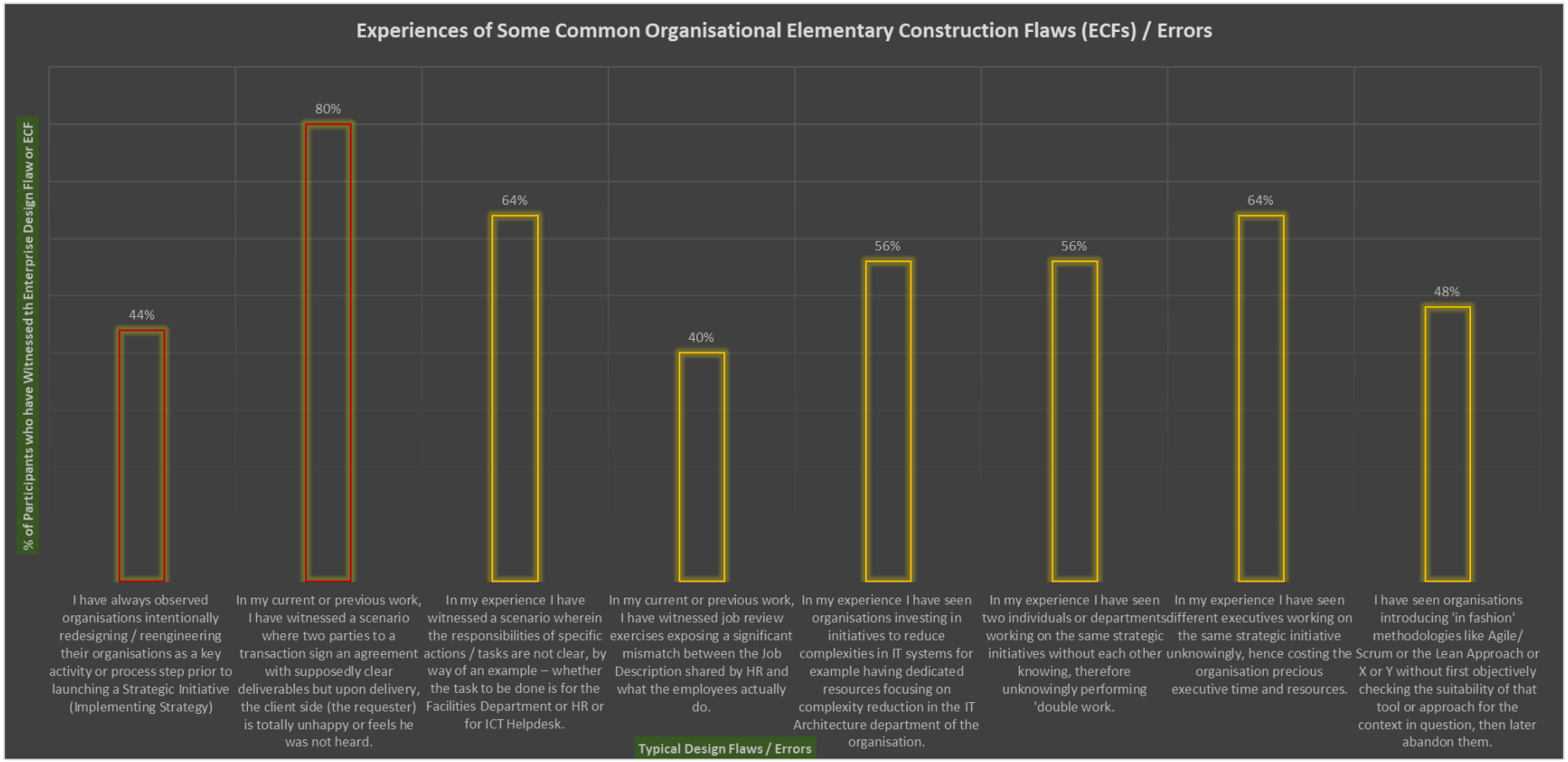


Figure 4.20 ***Acknowledgement of Experiencing / Witnessing some Common ECFs by the Participants***

The next section analyses the data collected from a quantitative perspective to enhance the quality of the findings and to test the propositions outline in Chapter 1 of this report.

4.3 Quantitative Data Analysis

Descriptive statistics was used to quantitatively summarise key features of the data collected from the Delphi Study thereby triangulate the data to aid to the robustness of this study. The statistics are analysed reflecting on the Delphi final round (Round 2) starting with section B. Refer to Appendix B2 and E.

4.3.2 Fundamental Conditions of Success of any Strategy Execution Effort

This section explored the importance of specific basic conditions for the success of any strategy execution effort. Participants were asked to rate the extent to which they agree or disagree with various statements as shown in Table 4.2. The Delphi Round 2 questionnaire used a 7-point Likert scale with one (1) being Strongly Disagree; four (4) Neutral and seven (7) implying the study participant strongly Agrees. Note that the attributes (an extract from Part B) of Delphi Round 2 have been arranged below in descending order based on the *mean* score. Refer to Appendix E, Section B (Delphi R2 Raw Data Analytics Dashboard).

Table 4.5: Descriptive Statistics on Fundamentals Conditions of Success of any SE Effort

Item #	Attribute that was investigated	Mean	Std. Deviation
1	Leadership alignment on either the strategic intent or the related trajectory via which the strategy will be realized is a critical condition for successful Strategy Execution.	6,64	0,569
2	Reviewing the current 'Organisational Capabilities' and acquiring the right capabilities in line with the strategic intent is a critical condition for successful Strategy Execution.	6,52	0,586
3	When the strategy changes, it is necessary to review the operating model and design principles to guide the transition to the new or desired strategic intent.	6,20	1,118
4	Listening to what employees are saying and the way they speak can give an indication on whether the trajectory of strategic intent is changing or moving in the desired path.	6,00	1,155
5	Clarity of Decision Rights for individuals or groups tasked with driving Strategy Execution (i.e., Who decides over which decisions, what decisions must be made, and how the decision-making process should work) is key for successful Strategy Execution.	5,80	1,118
6	When changing or launching a new strategy, it is highly likely that new and/ or different capabilities will be required, and the influence of legacy capabilities may need to be reduced or retired	5,64	1,705
7	Experiencing the future (this could be through prototyping; simulations, conducting a proof of concept or a pilot project) when introducing a new intervention or strategic initiative is critical in aiding Strategy Execution.	5,44	1,557
8	'Clarity of the details of Transactions' (at least the 'vital' ones) that an organisation has entered or is in discussions is fundamental in checking how that entity will Successfully Execute Strategy.	5,12	1,201
	Overall	5,92	1,126

Item 1 in Table 4.5. Leadership alignment on either the strategic intent or the related trajectory emerged as a critical condition for successful strategy execution, as indicated by the high mean rating of 6.64. This suggests that the experts strongly believe that when leaders align and take joint accountability [collective leadership] on the direction and approach to achieving the strategic goals, it greatly enhances the chances of successful strategy execution. The low standard deviation of 0.569 further emphasizes the consensus among the experts on the importance of this condition.

Item 2 in Table 4.5. Reviewing the current 'Organisational Capabilities' and acquiring the right capabilities in line with the strategic intent also had a high mean rating of 6.52. This underscores the experts' agreement that assessing the existing capabilities of an organization and acquiring the necessary ones aligned with the strategic intent is crucial for successful strategy execution. The relatively low standard deviation of 0.586 also indicates a reasonable level of consensus among the experts regarding the significance of this condition.

Item 3 in Table 4.5. Just to clarify the results on the attributes that had high mean values. Attribute number 3 in Table 4.2 “When the strategy changes, it is necessary to review the operating model and design principles to guide the transition to the new or desired strategic intent - On the contrary, although the mean rating of 6.20 indicates a general agreement on the importance of this condition, the higher standard deviation of 1.118 suggests that there might be some divergence in the experts' opinions. This variability could be due to different perspectives on the extent of changes required or the specific approaches to transitioning to the new strategic intent.

Item 4 in Table 4.5 ‘Listening to what employees are saying and the way they speak to gauge whether the trajectory of strategic intent is changing or moving in the desired path’ received a mean rating of 6.00. This indicates a general agreement among the experts that employee feedback can provide valuable insights into the alignment between the strategic intent and the actual trajectory. However, the higher standard deviation of 1.155 suggests some variability in the experts' opinions, possibly due to differences in the perceived effectiveness of employee feedback as an indicator of strategic alignment.

Item 5 in Table 4.5 ‘Clarity of Decision Rights for individuals or groups tasked with driving strategy execution [for example Head of Implementation or a special project Steering Committee)’ was rated as a key condition, although the mean rating of 5.80 indicates a slightly lower level of agreement among the experts. The higher standard deviation of 1.118 further

highlights the variability in the experts' opinions on the importance of clearly defining decision-making authority and processes. It suggests that there might be differing perspectives on the extent and specificity of decision rights needed for successful strategy execution.

Items 6,7 and 8 in Table 4.5: the remaining conditions, including attribute 6 (the need for new capabilities when launching a new strategy), attribute 7 (experiencing the future through prototyping or simulations), and clarity of transaction details, received lower mean ratings ranging from 5.12 to 5.64. These ratings indicate a relatively lower level of agreement among the experts regarding the significance of these conditions. The higher standard deviations for these conditions (ranging from 1.201 to 1.705) suggest a greater diversity of opinions and perspectives among the experts.

Overall, the experts demonstrated a high-level consensus on specific elements that they believe will aid in successful strategy execution.,

- *importance of leadership alignment on either the strategic intent or the related trajectory*
- *the need to review organizational capabilities*
- *the need to review the operating model and design principles when launching a new strategy and,*
- *listening to what employees are saying*

Even though there was largely agreement on the importance of specific conditions required to aid SE, there were variations in their opinions. These differences in perspectives highlight the complex nature of strategy execution and the need to consider multiple factors and contexts when implementing effective strategies.

4.3.3 Clarity of Organisational Construction at the Ontological layer

Participants were asked to rate the extent to which they agree or disagree with various statements as shown in Table 4.3. Note that the attributes (an extract from Part C) of the Delphi Round 2 questionnaire have been arranged below in descending order based on the *mean* score. Refer to Appendix E, Section C (Delphi R2 Raw Data Analytics Dashboard). `

Table 4.6: Clarity of Organisational Construction at the deepest level (the Ontological layer)

Item #	Attribute that was investigated	Mean	Std. Deviation
1	Integrating an organisation's information systems; ensuring the data in the information systems is of good quality and that the data which is key for decision making is accessible in real-time is fundamental in aiding Successful Strategy Execution.	6,28	1,021
2	The transaction initiators and executors (the main actors in any strategic transaction) must have Capacity or be Competent; their Responsibilities clearly outlined and must have the Authority or Mandate to execute or negotiate on behalf of the transacting party.	6,00	1,041
3	To understand the quality and integrity of 'cooperation' as an anchoring pillar in Strategy Execution, there is a need for leaders to know and understand how people communicate, the 'what' in the information is being shared, the timing of sharing and the level at which the information is being shared.	5,88	1,301
4	Deliberate review of the composition of Strategic Initiatives Implementation Boards - e.g., a Project Steering Committee or a Change Control Board is key to ensuring that the 'right' individuals with vested interests in accelerating implementation are on board.	5,84	1,106
5	Incorporating Strategy Execution compatibility elements upfront in all transactions an organisation is working on will assist in designing out possible downstream implementation stage complexities that may impact successful Strategy Execution.	5,64	1,075
6	To understand the readiness to execute strategy, there is need to review processes to understand what information is being shared and its criticality for managing the cooperation between parties (within and external to the organisation).	5,56	1,356
7	Signed agreements (for example execution version SLAs or Contracts) and the architecture of the cooperation detailed in these agreements is a vital foundation for successful Strategy Execution.	5,08	1,288
8	'Transactions' (that is the way commitments / agreements) are brought about and the complexity of the transactions (scale, number, interfaces, actors & stakeholders involved) has a direct bearing on the complexity of the Strategy Execution effort.	4,76	1,052
	Overall	5,63	1,1552

Item 5 in Table 4.6. The experts strongly agreed that 'integrating an organization's information systems, ensuring data quality, and enabling real-time accessibility for decision-making' is fundamental for successful strategy execution. This consensus was evident from the high mean rating of 6.28, indicating a shared belief in the significance of these aspects. The low standard deviation further reinforces the experts' alignment on this condition.

Item 2 in Table 4.6. There was also agreement among the experts that the main actors involved in strategic transactions must possess the necessary ‘capacity, competence, clearly defined responsibilities, and the authority to execute or negotiate on behalf of the organization’. This condition received a mean rating of 6.00, demonstrating a consensus on the importance of these attributes. The moderate standard deviation suggests a reasonable level of agreement among the experts.

Item 3 in Table 4.6, while ‘understanding the quality and integrity of cooperation as a foundational pillar in strategy execution’ was deemed important, there was some variability in the experts' opinions. The mean rating of 5.88 indicates a moderate level of agreement, and the higher standard deviation of 1.301 suggests differing perspectives on the significance of understanding communication dynamics, content shared, timing of sharing, and the level at which the information is shared for successful cooperation.

Item 4 in Table 4.6 ‘Deliberate review of the composition of Strategic Initiatives Implementation Boards, such as Project Steering Committees or Change Control Boards before operationalising strategy’, was considered key to ensuring the involvement of individuals with vested interests in accelerating implementation. The experts moderately agreed with this statement, as indicated by the mean rating of 5.84. However, the standard deviation of 1.106 suggests some diversity of opinions among the experts.

Item 5 in Table 4.6, ‘incorporating elements of strategy execution compatibility upfront in all transactions’ also showed its significance in addressing potential downstream implementation complexities. Although the experts agreed on the importance of this condition, relative to other conditions, the mean rating of 5.64 indicates a slightly lower level of agreement – at least relative to other attributes. The standard deviation of 1.075 also suggests some variability in the experts' perspectives on incorporating strategy execution compatibility elements.

Item 6 in Table 4.6, “… the need to understand the readiness to execute strategy, there is need to review processes to understand what information is being shared and its criticality for managing the cooperation between parties (within and external to the organisation). On this attribute the participants expressed a moderate level of agreement with this statement, as indicated by the mean rating of 5.56. However, the higher standard deviation of 1.356 implies some diversity of opinions among the experts regarding the significance of for example intermediate factors.

Item 7 in Table 4.6, ‘the importance of signed agreements and the architecture of cooperation detailed within those agreements for successful strategy execution’ received a relatively lower level of agreement. The mean rating of 5.08 suggests that while the experts recognized their relevance, there were differing opinions on their importance. The standard deviation of 1.288 further emphasizes the diversity of perspectives among the experts.

Lastly (item 8 in Table 4.6) – although there was agreement on the direct impact of ‘… complexity of transactions [including scale, number, interfaces, actors, and stakeholders involved] on strategy execution’ experts expressed a lower level of agreement on this statement, as indicated by the mean rating of 4.76. The standard deviation of 1.052 suggests variability in the experts' opinions on the direct relationship between transaction complexity and strategy execution complexity.

In summary, the experts demonstrated varying degrees of agreement on the importance of clarity at the deepest layer (the ontological level) in an organization, there was strong consensus with low divergence on certain factors, such as,

1) *… integrating an organization's information systems, ensuring data good quality, and enabling real-time accessibility for decision-making*
2) *ensuring the right people/ actors lead the execution efforts (with the right capacity, right skill set (competency); and are given the mandate)*

However, there were differences in opinions on other aspects. These variations highlight the diverse perspectives among the experts on the significance of these ontological factors in achieving successful strategy execution.

4.3.4 Organisational Alignment of Systems Required for Strategy Execution

This section checked the importance of aligning specific organisational systems attributes required for successful Strategy Execution. The rating of the outcomes (Table 4.7) sheds light on the significance of each attribute in aiding strategy execution.

Table 4.7: Organizational Alignment of various Systems required for Strategy Execution

Item #	Attribute that was being Investigated	Mean	Std. Deviation
1	How important is creating 'clarity of the mission (the strategic intent and the strategic trajectory)' and the resultant responsibilities as a foundation for change management?	6,72	0,458
2	How important is clarity in actors' roles (that is clarity of responsibilities and accountabilities of the 'right' people) in aiding a 'good' corporate culture and reducing work politics?	6,56	0,651
3	How important is 'Task or Role Ownership' as a first step to creating an organisational culture of accountability which is a necessary condition for Successful Strategy Execution?	6,24	0,970
4	How important is resourcing (allocating adequate budget to) the Architecture / Design / Planning departments in order to design out downstream challenges and to ensure they realise their responsibility to reduce complexity in systems designs?	6,08	1,152
5	How important is 'timely access' to clear and unambiguous information as a requirement for the institutionalisation of strategic initiatives?	6,00	1,080
6	How important is understanding and objectively testing the technical complexity of applications (Apps) during the Development phase (i.e., checking the number of parts, the number of interfaces, and how they relate before finalising development)?	5,56	1,261
7	How important are 'agreements' as an enabler of effective communication processes in projects with several parties e.g., Building a Soccer World cup stadium or Building a Tax Returns e-filling system for the Tax Authority?	5,56	1,387
8	How important are functions or departments which manage and enforce rules and procedures that are applied to the organisation as an aid in Executing Strategy - for example, a Project Management Office (PMO)	5,38	1,610
	Overall	6,0118	1,0710

Item 1, in Table 4.7 above, '… creating clarity of the mission, (the strategic intent and the strategic trajectory), emerged as a highly important attribute. The experts overwhelmingly agreed on its significance, as evidenced by the high mean rating of 6.72. This indicates a consensus that establishing a clear understanding of the organization's mission, and trajectory of the strategic intent is foundational for effective change management and successful strategy execution. The low standard deviation of 0.458 suggests a strong alignment among the experts on this aspect.

Item 2, in Table 4.7 'Clarity in actors' roles, including responsibilities and accountabilities (item 2)', was also considered crucial for fostering a positive corporate culture and reducing workplace politics. The experts rated this attribute highly, as indicated by the mean rating of 6.56. This suggests a shared belief that clearly defining the roles of individuals involved in

strategy execution contributes to a healthy corporate culture and mitigates political dynamics. A relatively low (relative to the Delphi round 2 data analysis) standard deviation of 0.651 implies a reasonable level of agreement among the experts.

Item 3, in Table 4.7, '… importance of task or role ownership in creating a culture of accountability (item 3)', which is deemed necessary for successful strategy execution, received a high mean rating of 6.24. This indicates a consensus among the experts regarding the significance of assigning clear ownership of tasks and roles. It follows the experts are of the view that establishing a culture of accountability is seen as a crucial step towards achieving successful strategy execution. The higher standard deviation of 0.970 suggests some variability in the experts' opinions on this attribute.

Item 4 in Table 4.7 '… resourcing (allocating adequate budget) to the Architecture / Design / Planning departments in order to design out downstream challenges' was considered important but received a slightly lower mean rating of 6.08 compared to the other attributes in this section. This suggests that while the experts recognize the importance of allocating sufficient resources, there may be differing opinions on the extent of its impact on strategy execution. The higher standard deviation of 1.152 implies some diversity of perspectives among the experts concerning this attribute.

Item 5, in Table 4.7 '… the experts emphasized the importance of timely access to unambiguous information (item 5) as a requirement for institutionalizing strategic initiatives. This attribute received a mean rating of 6.00, indicating its relatively strong significance in facilitating successful strategy execution. The standard deviation of 1.080 suggests some variability in the experts' opinions on the level of importance assigned to this attribute.

Item 6, in Table 4.7 '… understanding and objectively testing the technical complexity of applications during the development phase (item 6)] received a lower mean rating of 5.56. This suggests that the experts perceive this attribute as less critical for successful strategy execution. The higher standard deviation of 1.261 indicates a broader range of opinions among the experts regarding the importance of assessing technical complexity during development.

Item 7, in Table 4.7 The '… importance of agreements as enablers of effective communication processes in projects involving multiple parties …' was rated at 5.56. While the experts recognized the role of agreements, there were differing opinions on their significance for successful strategy execution. The standard deviation of 1.387 suggests a significant diversity of perspectives among the experts on this attribute.

Item 8, in Table 4.7. '… functions or departments that manage and enforce rules and procedures applied to the organization, such as a Project Management Office (PMO)', were considered important but relatively less significant for executing strategy than most of the attributes in this section. This is indicated by the mean rating of 5.38 relative to say, 6,72 for item 1 […clarity of strategic intent and the strategic trajectory]. This suggests that the experts may have varying opinions on the role and effectiveness of such departments. The higher standard deviation of 1.610 implies a significant diversity of perspectives among the experts regarding this attribute.

In summary, the experts highlighted the importance of aligning various organizational systems for successful strategy execution. The following attributes showed overwhelming significance.

1) *clarity of mission - strategic intent and the strategic trajectory.*
2) *clarity in actors' roles (that is clarity of responsibilities and accountabilities of the 'right' people.*
3) *importance of task or role ownership in creating a culture of accountability.*
4) *resourcing (allocating adequate budget to) the Architecture / Design / Planning departments to proactively design out downstream challenges.*
5) *'timely access' (real-time) to clear and unambiguous information.*

However, there were differences in opinions regarding the importance of the role of agreements as an enabler of effective communication processes in projects with several parties, and the importance of functions that oversee execution like the PMO. These variations underscore the diverse perspectives among the experts regarding the impact of these attributes on strategy execution.

4.3.5 Experiences of Elementary Construction Flaws (ECFs)

Table 4.8 outlines the descriptive statistics outcome on the assessment experiences of some organisational Elementary Construction Flaws (ECFs)/ errors in practice. The objective here was to check the extent to which the participants (the experts) had experienced or witnessed these flaws in practice. The 7-point Likert scale was also used in this section, with (1) being 'Not at all' and (7) being 'Most of the time',

Table 4.8: Experiences of some Organisational Elementary Construction Flaws (ECFs)/ Errors

Item #	Attribute that was being Investigated	Mean	Std. Deviation
1	In my current or previous work, I have witnessed job review exercises exposing a significant mismatch between the Job Description shared by HR and what the employees actually do.	6,12	1,301
2	In my experience I have seen two individuals or departments working on the same strategic initiatives without each other knowing, therefore unknowingly performing 'double work.	6,00	1,118
3	In my experience I have witnessed a scenario wherein the responsibilities of specific actions / tasks are not clear, by way of an example – whether the task to be done is for the Facilities Department or HR or for the ICT Helpdesk.	5,92	1,038
4	In my experience I have seen organisations introducing 'in fashion' methodologies like Agile/ Scrum or the Lean Approach or X or Y without first objectively checking the suitability of that tool or approach for the context in question. (This in some cases leads to the organisation formally or informally abandoning the initiative/s within a few months of implementation).	5,68	1,651
5	In my current or previous work, I have witnessed a scenario where two parties to a transaction sign an agreement with supposedly clear deliverables but upon delivery, the client side (the requester) is totally unhappy or feels he was not heard.	5,64	0,952
6	In my experience I have seen different executives working on the same strategic initiative unknowingly, hence costing the organisation precious executive time and resources.	5,52	1,636
7	In my experience I have seen organisations investing in initiatives to reduce complexities in IT systems for example having dedicated resources focusing on complexity reduction in the IT Architecture department of the organisation.	4,72	2,031
8	I have always observed organisations intentionally redesigning / reengineering their organisations as a key activity or process step prior to launching a Strategic Initiative (Implementing Strategy)	4,00	1,915
	Overall	5,45	1,45534

Item 1, in table 4.8. Participants were asked to rate the extent to which they had witnessed a significant mismatch between the job description provided by HR (the Human Resources department) and the actual tasks performed by employees. Most participants reported experiencing this scenario to a notable extent, as indicated by the mean rating of 6.12. This suggests that there is often a disconnect between the expectations outlined in job descriptions and the actual responsibilities employees assume. The relatively high standard deviation of

1.301 indicates some variability in the participants' experiences and perceptions regarding this flaw.

Item 2, in table 4.8. Another common scenario reported by participants was the occurrence of two individuals or departments working on the same strategic initiatives without being aware of each other's efforts, resulting in duplicated work (item 2). This scenario received a mean rating of 6.00, indicating that participants frequently observed such occurrences. This lack of coordination and communication within organizations can be attributed to implementation inefficiencies and wasted resources. The standard deviation of 1.118 suggests some variability in participants' experiences concerning this flaw.

Item 3, in table 4.8. Participants also shared instances where the responsibilities for specific actions or tasks were unclear, such as determining whether a task should be handled by the Facilities Department, HR, or the ICT Helpdesk (item 3). This scenario received a mean rating of 5.92, indicating that participants commonly encountered situations where the allocation of responsibilities was ambiguous. This lack of clarity can also explain the confusion, delays, and inefficiencies typically witnessed when executing complex projects. The relatively low standard deviation of 1.038 suggests a moderate level of agreement among participants regarding this flaw.

Item 1, in table 4.8. In their experiences, participants frequently observed organizations […adopting trendy methodologies like Agile/Scrum or the Lean Approach without thoroughly assessing their suitability for the specific organizational context (item 4)]. This lack of objective evaluation often led to the abandonment of these initiatives within a few months of implementation. The mean rating for this scenario was 5.68, indicating a significant occurrence of this flaw. The higher standard deviation of 1.651 suggests a wide range of experiences and perspectives among participants regarding the suitability assessment of methodologies.

Item 1, in table 4.8. Furthermore, participants reported instances where [… agreements between two parties with clear deliverables failed to satisfy the client, leading to dissatisfaction or a perception of being unheard (item 5)]. This scenario received a mean rating of 5.64, suggesting that participants frequently observed such situations. Communication gaps, misunderstandings, or unmet expectations may contribute to this flaw. The relatively low standard deviation of 0.952 implies a reasonable level of agreement among participants regarding this scenario.

Item 1, in table 4.8. Another common scenario highlighted by participants was [… different executives unknowingly working on the same strategic initiative (item 6)], resulting in wasted executive time and resources. This flaw received a mean rating of 5.52, indicating its frequent occurrence in organizations. Lack of communication and coordination among executives can hinder strategic alignment and lead to inefficiencies. The higher standard deviation of 1.636 suggests diverse experiences and perspectives among participants regarding this flaw.

Item 1, in table 4.8. Participants also shared experiences where organizations invested in initiatives to reduce complexities in IT systems, such as dedicating resources to complexity reduction in the IT Architecture department. However, this scenario received a lower mean rating of 4.72, suggesting that participants observed this flaw to a lesser extent. The higher standard deviation of 2.031 indicates significant variability in participants' experiences and perspectives on this matter.

Item 1, in table 4.8. Lastly (item 7), participants were asked to share their experiences on […how often they had witnessed organizations engaging in activities to intentionally redesign or reengineer their structures as a key step before launching a strategic initiative]. Relative to the rest of the attributes in Table 4.5, this scenario received the lowest mean rating of 4.00, indicating that participants observed this flaw, less frequently. The higher standard deviation of 1.915 suggests diverse experiences and opinions among participants on the necessity of organizational redesign in the context of strategy implementation.

In summary, participants shared their experiences of organizational elementary construction flaws (ECFs) in various scenarios. The findings highlight the prevalence of …

- mismatches between job descriptions and actual tasks,
- duplication of work/ double work
- unclear responsibilities
- hasty adoption of methodologies without suitability assessment
- client dissatisfaction despite a clear agreement
- executive oversight overlaps in strategic initiatives, and
- limited investments in complexity reduction of IT systems

While some flaws were frequently observed, others were reported less frequently. The varying standard deviations indicate the diverse experiences and perspectives of participants regarding these ECFs.

4.3.6 Other Expert Synthesized Emerging Themes in Strategy Execution

In summary, the experts identified and rated various attributes and assertions that they deemed important in aiding successful strategy execution. Further to this below are some themes that emerged from the study. Refer to Delphi R#1 Section F (Appendix B2 and F)

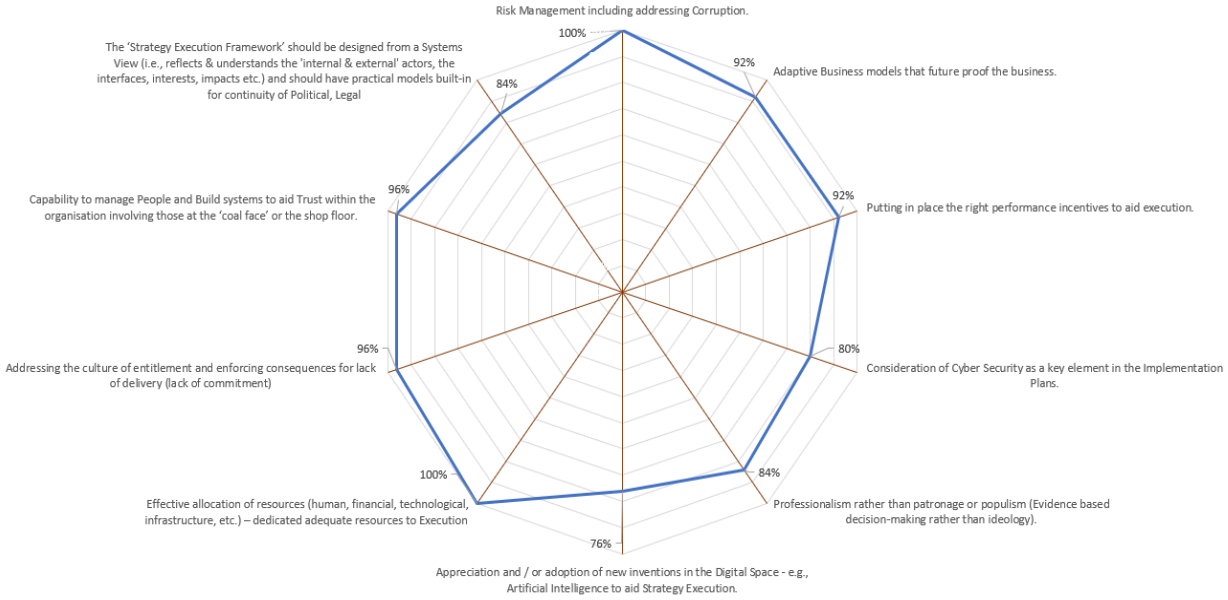


Figure 4.21 ***Consensus View on Strategy Execution Themes that Emerged from Round 1***

As a way of prioritising, the researcher raised the consensus bar from 70% to 90% since these attributes emanated from individual suggestions in Round #1 and were only tested in Round 2. Even with this high consensus cut-off six (6) attributes came out strongly:

- *Risk Management including addressing Corruption | at 100% consensus*
- *Addressing the culture of entitlement and enforcing consequences for lack of delivery (lack of commitment) | at 96 % consensus*
- *Capability to manage People and Build systems to aid Trust within the organisation involving those at the 'coal face' or the shop floor | at 96 % consensus.*
- *Adaptive Business models that future proof the business | at 92 % consensus*
- *Putting in place the right performance incentives to aid execution | at 92 % consensus*

4.5 Chapter Summary

The findings from this study are summarised below and will form the basis of the next chapter: Chapter 1 – Discussion.

Outline of findings on RQ 1*: What are the issues /challenges with the current strategy execution frameworks?*

The issues /challenges are grouped into 7 themes as presented in Table 4.3 of this chapter. Each theme has dominant sub-themes that came up from the qualitative study and was corroborated by the quantitative study as outlined below (mentioning at least two sub-themes per category (main theme).

- **The Strategy Itself**
  - Poor quality of strategic objectives
  - Strategy without an implementation plan
- **People (the Team)**
  - Lack of a competent people / team
  - Lack of clarity of roles & responsibilities
  - Lack of a motivated and inspired team
- **Leadership**
  - Lack of understanding of the complexity of strategy execution
  - Lack of collective leadership in implementation phase
  - Limited focus on SE relative to strategy formulation
- **Organisational Capabilities**
  - Lack of project, programme, and portfolio Management capabilities
  - Ability to understand existing and identify future capabilities
- **Organisational Enablers**
  - Effective performance management systems and related processes
  - Lack of an enabling organisation structure
- **Organisational Culture**
  - Lack of an 'implementation' culture
  - Lack of alignment between execution approach and culture

        - Resistance to change

    - **Effective Communication**
        - Lack of clear (clarity) and 'good' quality communications
        - Strategy not communicated to all
        - Unclear and / or misaligned KPIs

Having understood the issues/ challenges, the researcher then asked the participants to prioritise attributes that would aid SE based on three (3) specific headings. Stating a minimum of four per heading, the results are summarised below:

A. Fundamental conditions of success of any strategy execution effort

- *importance of leadership alignment on either the strategic intent or the related trajectory*
- *the need to review the operating model and design principles when launching a new strategy and,*
- *the need to review organizational capabilities*
- *listening to what employees say or engaging employees*

B. Importance of clarity at the deepest layer (the ontological level) in an organization's

- *the need to integrate an organization's information systems, ensuring data good quality, and enabling real-time accessibility for decision-making*
- *ensuring the right people/ actors lead the execution efforts (with right capacity, right skills set (competency); and are given the mandate)*
- *the need for leaders to know and understand how people communicate, the 'what' in the information is being shared, the timing of sharing and the level at which the information is being shared.*
- *Deliberate review of the composition of Strategic Initiatives Implementation Boards - e.g., a Project Steering Committee or a Change Control Board is key to ensure that the 'right' individuals with vested interests in accelerating implementation are on board.*

C. Importance of aligning various organizational systems for successful strategy execution

- *ensuring clarity of mission - strategic intent and the strategic trajectory*
- *ensuring clarity in actors' roles (that is clarity of responsibilities and accountabilities of the 'right' people)*
- *the need to look at task or role ownership to enable a culture of accountability*
- *resourcing (allocating adequate budget to) the Architecture / Design / Planning departments (PMO included) to proactively design out downstream challenges*
- *'timely access' (real-time) to clear and unambiguous information*

Outline of findings on RQ 2*: To what extent can Enterprise Engineering principles and theoretical foundations be useful in developing a framework to drive strategy execution?*

The first part of this question relates to

- identifying the relevant principles and theoretical foundations and validating them, in this study via a structured literature review and the Delphi exercise.

The second part talks to

- establishing the applicability or relevancy to aid the 'to be' EE_bSE framework

This summary of findings addresses the first part in full and the second part partially. The second part will be further attended to in Chapter 5 (Discussion) and Chapter 6 (the EE_bSE Framework) of this study. To that end, the following principles and theoretical essentials of EE came out of this study.

These are clustered into four (4) categories:

Category 1**: Focusing on the 'essence' (the ontological layer) of an organisation**

- Clarity of mission (strategic intent and related trajectory)
- Importance of understanding how agreements are brought about and their complexity
- Importance of entering the 'right' transactions an understanding their impact
- Understanding the ontological model (i.e. the construction and operation model of an enterprise the transaction level

Category 3**: The design / engineering requirement**

- The requirement to make things (i.e. design elements) visible 'white box' mentality
- The focus on enterprise architecture (EA) and organisational alignment
- The focus on the construction model and its relation to the upstream process models
- The requirement to design for an intended outcome and to trace the influence of all key elements of the system of interest and re-design as necessary

Category 2**: The human-centric view of enterprises**

- Having the 'right' leadership (including steering committees)
- Having the 'right' teams / people
- Having the 'right' partners
- Clarity of roles, responsibilities, and accountabilities

Category 4**: The communication-centric of enterprise**

- Checking on what information is being shared and its criticality in the enterprise
- The language used in communication and how it is used (i.e., for example how the leadership communicate, and the language used)
- The type and quality of information shared, including the timing of sharing and the level at which the information is being shared
- The extent of integration of information systems to ensure good quality data and real-time access

Outline of findings on RQ 3*:* What are the key components of an Enterprise Engineering based Strategy Execution (EE_bSE) framework?

This question will be addressed in Chapter 6, however, it important to state that the building blocks (or main components) were informed by the four EE useful categories outlined above reflecting on the 7 themes that explained under research question # 1.

It should also be noted that the study participants, (specifically the Delphi Round 2 experts) demonstrated knowledge of the ECFs. One of the construction flaws tested in this study - error of 'unclear transaction / agreements was shown to be witnessed by 80% of the participants.

The next chapter discusses these findings.

Chapter 5 – Discussion

"… the gap is in understanding the essence of the construction and operation of complete systems; more specifically, of enterprises

(Russel L Ackoff, 1974)

The purpose of this mixed methods Delphi study was to understand how the success rate of Strategy Execution can be improved through the application of enterprise engineering principles and practices. This chapter discusses the findings against extant literature as reviewed in Chapter 2 of this report.

5.1 Introduction

5.1.1 Discussion Overview

This discussion is centred on reviewing the findings focusing on the following objectives as presented in chapter 1 of this report.

1. To identify current issues /challenges in strategy execution.
2. To establish the extent to which Enterprise Engineering principles and theoretical foundations can be useful in developing a framework to drive strategy execution.
3. To develop an Enterprise Engineering *based* Strategy Execution (EE_bSE) framework.

Research Objectives (RO) # 1 and RO# 2 will be addressed in this chapter, while research objective 3 (RO#3) will be dealt with in chapter 6, which shows the path to and presents the EE_bSE.

It is also imperative that it be reiterated that despite the several efforts to address the strategy execution challenge, extant literature in this area has shown that the implementation problem persists and attention although now shifting to accommodate execution it is still not enough. However, before exploring the details of the issues it is appropriate at this stage to reflect on the demographic matters first.

5.1.2 Demographic Characteristics of the Study Participants

As shown in Appendix A3 and stated in Section 4.1.1, the participants in this study came from eleven (11) countries spread across four regions of the world - Africa, America, Europe, and

Middle East. Further to that the experts were from various industries - academia, management consultants, engineering consultants, telecoms, manufacturing, banking, NGOs alike). Because Delphi studies rely on the qualitative input of a diverse group of experts, this composition is important for a credible study (Linstone & Turoff, 2011).

It was also shown in Figure 4.1 that some of the participants had dual roles – 81% of the experts were either executive leaders or board members which implies considerable power to influence strategy execution. Of note is that 45% of the participants were practitioners dealing with operationalising strategy every day which added a practical perspective to, in particular - the open-ended questions. It was also shown in Appendix A, that the combined years of experience of the Delphi panel is 745 years with an average of 24 years per expert and this again adds to the credibility and validity of this work. On strategy execution exposure a key takeaway was that 71% of the participants had 15 plus year initiatives to operationalise strategy. Four (4) of these had 31 plus years of experience. On qualifications, 24 of the participants had a master's degree or higher with six (6) of those holding a doctorate, two (2) of which were professors in Strategy Execution related speciality. In addition to the picture painted above, two of these 31 participants have authored books in strategy execution.

The profile of the participants shows that were equipped and capable of providing credible insights to the study.

5.2 RO#1: Current Issues /Challenges in Strategy Execution

5.2.1 A review of the dominant themes that emerged from the results

Seven themes came out of this study – (1) The Strategy Itself (2) Leadership, (3) People, (4) Organisational Capabilities (5) Organisational Enablers (6) Organisational Culture (7) Effective Communication. These will be discussed below, in that order. This research is about the application of enterprise engineering principles and practices, anchored on the enterprise ontology perspective, as such when reflecting on these themes as guided by Section 4.12 in Chapter 4, it is important to show how these relate to levels of cooperation as explained in Section 2.4.6 of the literature review.

5.2.1.1 Importance of 'a Good Strategy' to Strategy Execution

The importance of a 'Good Strategy' has been highlighted in Chapter 2 of this study and confirmed by the Delphi panelists, as shown in Chapter 4, Section 4.2.1 (Figure 4.9) and Section 4.5 of this study. Under this theme, '*poor quality of strategic objectives*' and '*trying to operationalise a strategy without an execution plan',* were the main sub-themes that the participants highlighted as constraining implementation. Several authorities have argued for treatment of strategy execution as a distinct phenomenon that comes with its complexities (Bossidy, et al., 2011; MacLennan, 2011; Friesl, et al., 2021). However, that should not be construed to mean decoupling of implementation from formulation. In Figure 2.6, in Chapter 2 of this study, the researcher attempted to illustrate the overlaps of the two sub-domains of strategic management (formulation and implementation). There is agreement in literature that execution, to an extent depends on the quality of the strategy or put differently execution has roots in formulation. A good strategy therefore is aligned to the vision and considers the environment. This because the execution environment is highly dynamic and subjected to both exogenous and endogenous forces.

Guided by the works of Rumelt, (2011). A 'good strategy' should contain three elements (a) diagnosis of what is going on (b) a guiding policy or overall approach framework and (c) a set of coherent actions. Refer to section 2.15. in practice and in the context of this study, a diagnosis of what is going on can be argued to result in strategic objectives. On the contrary literature has shown that strategic objectives usually manifest as a mere list of things to do and as such do not face the problem. Following the same line of argument, by extension strategic objectives are linked to 'purpose'. And 'purpose' is an ontological component as it reflects the essence of the organisation. Put differently 'the purpose' of an organisation allows it to commit and make agreements. Refer to the cooperation levels in organisations, Figure 2.18.

On items (b) and (c) – guiding policy and a set of coherent action can both be linked to *trying to operationalise a strategy without an execution plan*' as per the study findings. This sub-theme can be linked to the process level 'processes to get things done', which again based on figure 2.18 and enterprise ontology theory is classified as an Infological element (level 2 of the cooperation levels hierarchy) . Accordingly, the content of the information (delivery plan, drawings, process maps, operating schedules) are all Infological and aid in executing strategy.

5.2.1.2 Importance of Leadership to Strategy Execution

As presented in Chapter 4, Section 4.3.2.7 of this report three sub-themes dominated the perspectives of the study participants (a) Lack of understanding of the complexity of strategy execution; (b) Lack of collective leadership in implementation phase and (c) Limited focus on SE relative to strategy formulation. This is consistent with the findings from the literature review (MacLennan, 2011; Ehlers & Lazenby, 2012; Heesen, 2016; Trafford & Boggis, 2017; Weiser, et al., 2020). As noted above, the leadership theme has been cited in many studies as a vital integrator of all the efforts and its over-arching nature ensures and complements a well-designed enterprise. Leadership is, for example, required to influence a culture of execution by ensuring the organisation enters the right deals (transactions); the 'right people' are employed and a 'culture assessment' is done before launch of strategic initiatives and sustained through-out (Bossidy, et al., 2011; Hough, et al., 2011).

Reflecting on item (a) Lack of understanding of the complexity of strategy execution. The issue of underestimating the importance of strategy execution was also cited by the study participants with some experts stating that the common practice is relegate execution to the 'doers' implying operational managers and their shop floor teams. As explained in section 5.3.1.1 strategy execution overlaps with formulation as it has core elements that reside in the 'purpose 'component and by extension is ontological. Further to that, the advent of the Strategy-as-Practice paradigm which focuses on a wider range of organisational actors added complexity to an already complex equation. Enterprise ontology aligns with S-as-P on this aspect as one of its foundational pillars is 'human centric view of the organisation".

On item (b) Lack of collective leadership in implementation phase has also been cited as a common source of errors / flaws in organisations and this has been confirmed by this study. Critical is leadership that knows the value of a collective strategy, shared perspective and commits to collective accountability – where outcomes and implications of decisions are shared (Bossidy, et al., 2011; Trafford & Boggis, 2017). By way of an example, such collective leadership will eliminate construction flaws related to roles and responsibilities of committees and other forums tasked with steering strategic initiatives / projects. In practice, steering committees usually get so divided that no decision is taken, or decisions are delayed thereby delaying transactions. This ECF is termed - Split Responsibility Executor (Shattered Execution) and is represented by the notation shown below.

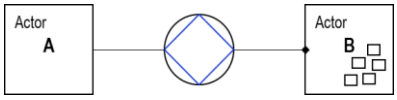


Figure 5.1*: **Example of a Construction Flaw (ECF) that demonstrated the absence of Collective Leadership** [Split Responsibility Executor - Shattered Execution] – (Researcher own Illustration)*

Finding (c) [Limited focus on SE relative to strategy formulation] is explained by the same logic as item (a), Further this extant literature has also shown that strategy execution is complex attributing this submission to a couple of issues – (a) the several unknowns and dependencies of SE (b) the interaction of SE with other systems in a nonlinear fashion (c) dependence on the readiness of an organisation to adopt or launch the strategy. (Bossidy, et al., 2011; MacLennan, 2011; Ehlers & Lazenby, 2012; Venter, 2014; Heesen, 2016). As such, item (c) under leadership is an ontological element.
See also Table 1, Section 5.3.2 for the summary view.

5.2.1.3 Importance of People to Strategy Execution

Another aggregated theme that came out strongly from the study is that of the 'right' human resources (People). Three elements were highlighted (a) Lack of competent people / team, (b) Lack of clarity of roles & responsibilities and (c) Lack of a motivated and inspired team.

The issue of skills and their impact on delivery (execution of strategic and operational initiatives) is well researched. The referred to skill entails both the skill to do the job (the specific specialty or functional task) and the skills to operationalise strategies (this includes both for executives, middle managers, and partners/ vendors). For the latter this includes continuous education that differentiates 'strategy execution' from other commonly used vehicles for operationalising strategy – i.e., transition /change management and project management. Because the referred skill is required to perform the 'elementary actor roles' in transactions (in fact some strategic and /or central transaction, this component is argued to be elementary. As an example, a skilled leader (however the definition of 'skilled'), a skilled operations director or a functional manager (e.g., a contracts manager) can assume an elementary actor role in a transaction.

Item (b) [Lack of clarity of roles & responsibilities] and (c) [Lack of a motivated and inspired team] are intertwined and are covered by the explanation below. To avoid scenarios where strategies are 'pushed' or 'imposed', the researcher advocates for an approach where the employees or execution teams are given the opportunity to exercise their own judgment.

However, they can at a minimum do that if their roles and responsibilities are clearly defined and so are the decision rights of their superiors and themselves. The enterprise engineering toolbox has the necessary tools to ensure employees are empowered to perform transactions in an acceptable way. This toolbox ensures job descriptions are clear, and they are not open to different interpretations. A job description that evolves from the construction model of an enterprise will list the essential actor roles for the specific job and the competence required for the role clear as opposed to vague job descriptions (Janssen, 2016). If job descriptions are checked against the construction model by an experienced and competent enterprise engineer - elementary construction flaws (ECFs) may be revealed, for example errors shown in Table 2.15. It follows items (b) and (c) are also ontological elements.

It is also important to note that some participants put emphasis on the notion that people naturally do not want change. This study argues that if there is clarity on what needs to be done, even if change may be resisted it will be inadvertently embraced. The association of people and digital was also highlighted. The findings of this study also highlighted the usefulness of information banks in aiding the agility and speed of delivery of the execution team, hence reinforcing the relationship between the actors and the technology. It should be noted that research work on People and the relation with performance is vast and this research with its limited scope (demonstrating the usefulness of enterprise ontology in adding strategy execution) will not do justice to fully unpack it.

5.2.1.4 Importance of Organisational to Capabilities Strategy Execution

Several capabilities required to successfully execute strategy were highlighted in this study, however two dominated the responses. That is (a) the project management capability [covering the full spectrum (projects, programmes, and portfolios) (b) the ability to understand existing and identify future capabilities. Refer to section 4.2.1.3, Figure 4.11 in Chapter 4 of this study.

Project management is "… the application of knowledge, skills, tools, and techniques to project activities to meet project requirements (PMI, 2017 p.554). The fact it requires application of already conceptualized notion implies that it is a derived attribute and as such it cannot be ontological. In addition, the fact that the hierarchy of the elements of the attributes (strategic objectives, portfolio, programmes and projects) as widely published suggest that the latter three elements are derivatives and are organised in a process to deliver the strategic imperatives (MacLennan, 2011; PMI, 2021). Put differently the scope and related information required to

deliver the portfolio targets is contained in the strategic objectives and in the same order (for large entities) the scope and information required to deliver project objectives are contained in programmes (except for special projects) that have direct link to strategic objectives. Hence the confusion in industry that strategies are operationalised primarily via project management. The leading project management bodies [PMI, Prince2, OP3] with robust well-thought-out methodologies still report high rate of failure in strategic initiatives even in areas where these methodologies have been deployed. It follows that the project management capability is infological as the standards given above provide information (processes, tools, and techniques) to deliver specific projects be it in IT, banking, retail, manufacturing or in construction etc.

Sub-theme (b) the ability to understand existing and identify future capabilities, also came out strongly and was also validated under proposition 3 Section 4.4.3 in Chapter 4 of this study as one of 6 predictors that has the greatest influence on strategy execution. Capabilities are ordinarily built overtime, and the onus is on the leadership to identify those capabilities versus the needs of the intended strategy. In other words, businesses develop (intentionally or otherwise) a set of organisational capabilities that support and drive their operations.

The learning here is on the need to manage capabilities as a portfolio and always refer to that portfolio each time a strategy is to be launched – hence the call by this study participants for the ability to understand existing and identify future capabilities. Such capabilities could include Data Analytics; Product Development; Contract Management etc. Unlike competencies these are a set of skills, abilities and expertise that reside within a firm and not individuals (Trafford & Boggis, 2017). This therefore implies they are a source of information and as such these capabilities reside in the infological layer.

5.2.1.5 Importance of Organisational Enablers to Strategy Execution

Organisational enablers as a cluster have not been adequately attended to in literature, however the results of this study highlight the significance of this cluster in influencing strategy execution. For this discussion organisational enablers refer to the support required to successfully execute strategy. Support in terms of resources, organisational structure, skills, knowledge, tools, performance management systems, exogenous and endogenous forces. The study participants highlighted (a) performance management systems & processes (b) organisation structure. Refer to section 4.2.1.4, Figure 4.12 in Chapter 4 of this study.

The need for a performance criterion and the related team and individual KPIs is widely advocated for (MacLennan, 2011; Heesen, 2016). With the advent of digital technologies in the past decades some authors even go further advocating for workforce analytics to improve strategy execution (Levenson, 2017). The performance management systems topic is wide however the central aim is to measure and improve the performance of people in that organisation. Kaplan and Norton's (2008); De Flander's (2010); McLennan's (2011) and many other bespoke models feature this component. Referring again to the cooperation levels in Figure 2.18 (Chapter 2 of this study), this sub-theme is in both the infological layer and the Datalogical layer. Infological because of the process element and data logical because of the dashboards and other ways in which the performance metrics are communicates.

The issue of (b) organisational structure is also well researched, however, its ideal origin is debatable. Origin in the context of what informs the making of this structure. Chandler's doctrine (1962): puts high emphasis on organisational structure when formulating or executing strategy and this constant still exists in many frameworks and rightly so [Galbraith & Nathanson (1978); Waterman & Philip (1980) also referred to as McKinsey 7S; Hrebiniak & Joyce (1984); McLennan, (2011)], This emphasis has since sparked the debate on whether strategy - drive's structure or the verse versa. Equipped with the doctrine of enterprise ontology which locates strategy in the ontological layer, it follows that the researcher is inclined to support the assertion that structure follows strategy. In other words, the organisation structure is a derivative not the strategy. Accordingly, the researcher locates organisation structure in layer 2 (the infological layer)

5.2.1.6 Importance of Effective Communication to Strategy Execution

An important aggregated theme that came out of this study is the need for effective communication. Consistent with enterprise engineering literature, the Delphi study showed that experts were aware of the elements extracted from the structured literature review concerning effective communication and confirmed them as relevant, Figure 4.10 in Chapter 4 of this study shows the top three dominant sub-themes that the experts indicated that their absence will likely impact effective communication, (a) Clear and 'good' quality communications (b) communicating strategy to all relevant persons (c) Clear and 'purpose' aligned KPIs.

The definition of strategy execution adopted in this study puts *communication* at the centre of translating (operationalising) the strategic intent into action [Refer to section 2.1 in Chapter 2

and the List of Terms in the ancillary section of this report]. This spans from clarity in the communication, what information is being communicated, how it is communicated, to which audience and the timing thereof. Hence it is not surprising that this came up as a dominant theme.

What is not adequately addressed in literature on communication is the link of communication with the 'essence' of the organisation. As an example, the need to prioritize management communications and to communicate only that which is necessary to drive the strategy execution can be linked to 'role clarity' a composite error in enterprise engineering. This was also confirmed by experts as shown in Figure 4.10 in Chapter 4 of this study). Typical elementary construction flaws (ECFs) / errors associated with role clarity shown in Table 2.15 include: error ID# 02 – *Unclear Initiator* [an error that relates to a scenario where its common cause that the transaction under study is important, but it is not clear who initiated it and this lack of clarity may lead to none of the actors doing what they are expected to do.]; error #04 – *Missing Authority Initiator* [an error that relates to issues of actors who do not have the authority or the mandate to perform the work.]; and error 10 – *Missing Executor*. [an error that relates to a scenario where, for example, a strategic initiative is launched but nobody 'actually' does the work.] etc.

Even though these sub-themes are mission critical, note that these extended examples cannot be taken to imply that the theme "effective communication" and its related sub-themes are ontological elements. Their link to 'role clarity' implies that these are derived attributes / or consequential attributes. The other dimension that came up in Figure 4.10 is that of information platforms by extension speed of communication, or the speed at which information is relayed and its related dimensions of credibility of that information. Credibility of information motivates action while speed encourages quick decision making and hence both enhance successful strategy execution (Chirwa & Boikanyo, 2022). By way of an example, again referring to Table 2.15, Error 18 [*missing key information to do the job*] is a typical construction flaw associated with speed of communication.

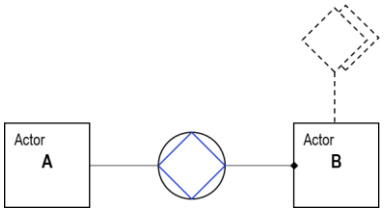


Figure 5.2*: **Example of Construction Flaws (ECF)*** (Missing key Information to do the Job) – *(Researcher own Illustration)*

Enterprise engineers advocate for real-time information banks to allow for quick decision making and that element has been confirmed by the experts. As such, revealing the wiring diagram or construction model at the ontological layer will assist in knowing which communication related errors exist that need to be attended to aid Strategy Execution. It should be noted that there are other dimensions of Effective Communication that have a bearing on effective communication that cannot be adequately addressed by Enterprise engineering. These include but are not limited to flexibility of formal channels of communication; provision of feedback in communication and channels of communication. Nonetheless with respect to communication dimensions, several experts agree with the panelists: information flow and clarity of that communication are considered the strongest contributors to successful strategy execution (Neilson, 2008; Radomska, 2014; as cited by Hove, 2016).

5.2.1.7 Importance of Organisational Culture to Strategy Execution

Almost all participants highlighted the need for a *performance culture* to support strategy execution. The referred to 'culture' entails *shared values* (i.e., what is important) and *beliefs* (i.e., how things work) that interact with an organisation's structure and control systems to produce behavioural norms (i.e., the way things are done in an organisation) (Hough, et al., 2011). Put differently 'culture' is the personality and character of the organisation (CMI, 2015). But again, this is high-level language, the enterprise engineer seeks to go deeper to locate that which influences '… the way things are done in an organisation'. It should be appreciated that an organisations' culture can be viewed from many angles and the characteristics are reflected in several overlapping dimensions which makes this area (organisational culture) inherently complex (ibid). Though limited, extant literature has shown evidence of some work done on the relationship between organisational culture and strategy execution (Reddy & Scheepers, 2019). Much of this effort focuses on effects / impacts of culture on execution and dimensions that should be looked at to check readiness for execution from an organisational culture

perspective. Themes or titles like – 'challenges of adapting organisational culture …', 'influence of organisational culture on…', 'effects of organisational culture' etc. – dominate extant literature on organisational culture in relation to strategy execution.

This study acknowledges these efforts and the need to look at an enterprise from a bird's eye view but departs from that notion and goes 'under the hood' of the enterprise. That is to expose and analyse the wiring diagram of the organisation at the ontological layer. The desired outcome being to understand the inner workings of the organisation ('white-box perspective) and as such, extract elements that influence execution. This research showed four dominant dimensions related to culture: *coordination, information sharing, competence, and employee's commitment* (for this study collectively expressed as taking responsibility and accountability for tasks). The analysis of the underlying organisational culture drivers for these dimensions, from an enterprise engineers' perspective is shown in Figure 5.4 in this chapter. The argument here is that if an organisation has engaged the 'right' people (competent, accountable and the right match for the role); their responsibilities clearly laid out; the related support systems (for example real-time *information banks* alike); the 'right' transactions (the agreements and commitments) related to the strategic intent correctly structured and finalised, infused with right leadership – an execution culture naturally evolves all other things being equal.

5.2.2 Relationship between Sub-themes and the Cooperation Levels in Organisations

The table below summarises how the resultant sub-themes relate with the cooperation levels of the organisation as presented by Dietz, (2006) and clarified by Janssen, (2016). This view is important in informing the 'to be' EE_bSE framework to be presented in chapter. The classification is based on the results and arguments discussed in section 5.3.1. The sub-themes are written positive language to allow for further processing when building the SE framework in Chapter 6. Note that there are some sub-themes that reflect in two categories based on the explanation to support the categorization as given in Section 5.3.1. Of these elements its evident that 7 elements qualified to be located within the ontological level (the deepest layer in an enterprise).

- ✓ '**Strategy Itself** - *Quality of strategic objectives*
- ✓ **Leadership** - *Understanding the complexity of Strategy Execution*
- ✓ **Leadership** - *Collective leadership in implementation phase*
- ✓ **Leadership** – *Proportional or equal focus on Strategy Execution relative to Planning*

- ✓ **People** – *Availability of competent people / team*
- ✓ **People -** *Clarity of roles & responsibilities*

Table 5.1 Mapping of the Sub-themes to the Cooperation Levels

Theme	Sub-theme	Ontological	Infological	Datalogical
The Strategy Itself	a. Quality of strategic objectives b. Strategy implementation plan	☑	☑	
Leadership	a. Understanding the complexity of Strategy Execution b. Collective leadership in implementation phase c. Proportional or equal focus on Strategy Execution relative to Planning	☑ ☑ ☑		
People	a. Availability of competent people / team b. Clarity of roles & responsibilities c. Presence of motivated and inspired team	☑ ☑ ☑		
Organisational Capabilities	a. Capability managing projects, programmes, and portfolios b. Capability to identify and understand existing and future capabilities		☑ ☑	
Organisational Enablers	a. Effective performance management systems and related processes b. Existence of enabling organisation structure		☑ ☑	☑
Effective Communication	a. Clear and 'good' quality communications b. Communication of strategy to all c. Clarity of KPIs		☑ ☑ ☑	☑ ☑ ☑
Organisational Culture	a. Presence of an 'implementation' culture		☑	

	b. Alignment between the execution approach & culture c. A motivated & inspired team that does not resist change		☑ ☑	

As indicated in Summary of findings under section 4.5 – outline of findings on RQ#2, the view in Table 5.1 read together with the analysis and commentary in Section 5.3.2 addresses partially the second part of this research question [i.e. establishing the applicability or relevancy of findings in aiding the 'to be' EEbSE framework].

5.2.3 Other themes that emerged from the results – Corruption & Entitlement

5.2.3.1 The culture of entitlement and corruption

An important but not surprising attribute (at least is some jurisdictions) that came out strongly but did not get the required numbers from the Delphi panel to warrant statistical analysis was the issue of entitlement and corruption. This is mentioned in this section even without the requisite support data for two reasons:

1. Corruption remains a big challenge in developing markets and in Africa where some of the Delphi panelists are based or have roots.
2. The intensity of the language used suggested deep emotions on these attributes hence the researchers found it fitting to record the sentiments for other researchers to note or further investigate.

Ignoring its admissibility for the data of this research, in the context of this study, this attribute remains relevant and can be located within the culture dimension. Sustained corruption can be attributed to contamination of the 'people' element in the ontological layer. Based on the findings of this study, the weakening of the 3-legged structure [purpose (strategy); People (Team) and Leadership] in the 'hood' of an organisation (the ontological layer) by comprising the 'people element will likely sustain corruption. Inadvertently corruption directly impacts execution, and it destroys a critical pillar at the essence level.

The researcher speculates that had the sample size been bigger, the data could have been sufficient to warrant analysis. The emotions expressed by Participant 2 [P2] paints the picture.

P2: "…get rid of corruption which is deadly and enforce integrity with commitment and capacity … and [get rid of] a culture of wanting and demanding to share in prosperity without contributions to create it".

Short of reducing the problem and without discounting a myriad of interventions on this attribute, just like any other culture elements, again, the researcher submits that part of its sustainable remedy lies in re-engineering the ontological layer focusing on the people parameters - *role clarity, competence requirement, responsibility and accountability requirements* and these elements overseen by the *'right leadership'.* However, this should not be viewed as simple or not easy as the right leadership might not be easy to find and so are the competent, responsible, and accountable people nor will the organisational construction model be easy to make visible (because of complexities of some organisations).

5.3 RO#2: The extent to which EE is useful for developing a SE framework

As shown in section 4.2.2 and 4.2.2 of this report (Chapter 4) the study participants reached consensus on most elements on the value of making use of EE principles and practices in SE. The main building blocks of the useful principles of EE are discussed below.

5.3.1 Focusing on the essence of the organisation

The previous sections of this chapter have dwelled on discussing and showing the link between enterprise design and strategy execution. This section focuses on explain the significance of focusing on the essence of the organisation. The essence layer is the ontological layer, where the blueprint of the organisation is visible (Dietz, 2002; Dietz, 2006). The ontological layer is considered relatively stable (Janssen, 2016) as it has less elements and related systems dynamics, yet it has the greatest impact if any changes are to be made. Refer to Figure 2.18 in Chapter 2 of this report. This is because components at the Infological and Datalogical level follow from the Ontological prescripts. In other words, infological designs (for example processes and related systems) are largely derivatives and it follows that Datalogical activities are consequential – for example how we communicate or how we share data does not tell us about the content of the data thereof. Conversely the commitments reached at the ontological layer for example partnering with a particular entity in a build-operate and transfer (BOT) project will impact the design of the resultant programme / project delivery processes. The findings from the study confirms this notion as there was overwhelming agreement on the (a)

importance of clarity of mission (strategic intent and related trajectory); (b) importance of understanding how agreements are brought about and their complexity; (c) importance of entering the 'right' transactions an understanding their impact and (d) the importance of understanding the ontological model (i.e. the construction and operation model of an enterprise the transaction level

In agreement with, Fernandes & Tribolet, (2021), it follows then that to influence change in enterprises [and by extension predict outcomes] in a systematic and controlled manner, 'white box - based knowledge is a requirement. This is – that is the knowledge concerning the construction and the operation of enterprises"

5.3.2 The design / engineering requirement

Reflecting on the insights from section 5.4.1 and now that the organisation is visible, it follows there is need to check the wiring diagram (lower level architectural view – see example in Figure 2.24 in Chapter 2 of this report) of that system of interest (for example a specific department in a large corporate or the enterprise itself) to validate its alignment with the overall purpose or the sub-purpose of a specific mission (in this case to execute a specific strategic initiative). To do that a construction model at the ontological is vital.

Even though a key assumption of the theoretical lens of this study is that, at a higher level an enterprise is no different from an engineered system, the researcher acknowledges the limitations of the engineering approach in this complex-social technical system (the enterprise). "The inherent complexity of social systems results in epistemic limitations on measurement, modelling, and prediction (Pennock & Rouse, 2016).

The hybrid nature of this social-technical system is illustrated by Figure 5.3 below. This view shows that enterprises exist on the boundary technical and social systems meet. This limitation suggests that EE is useful in influencing and to an extent predicting strategy execution success rather than control the outcome.

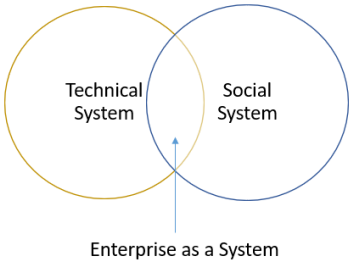


Figure 5.3: ***The Hybrid Nature of an Enterprise as a System*** *(the researcher's illustration)*

This limitation, however, cannot be construed to close the case for enterprise engineering. This is because just like an engineered system an enterprise has a purpose and an intentionality. It follows its construction at the correct level (the ontological layer) must mirror that purpose. Therefore, it can be argued that an organisation has a design component (Fernandes & Tribolet, 2021), that which should be attended to. This research effort contributes to that design component.

As discussed in Section 2.4.8 (Chapter 2) of this report, and as shown from the study findings section 4.5 under RQ#2, there is a requirement to make things visible and the starting point is the construction model. That is the model that shows all transactions that take place in an organisation and how they relate. As depicted in figure 2.23, that is the model from which other models evolve (for example the common process models which most companies focus on in their re-engineering initiatives).

It is also at this stage that the enterprise engineer may elect to review the as is construction model of an organisation to check for the ECFs (errors) as validated in Delphi round 2 of this study (Refer results in Section 4.2.4 in Chapter 4 of this study).

5.3.3 The human centric view of the organisation

Section 5.2 above has demonstrated the application of EE in address issues that manifest as complex to a traditional observer. This has been dealt with Section 5.2.1.2 (Importance of Leadership); Section 5.2.1.3 (Importance of People) and Section 5.2.1.6. (See also Figure 5.4). As such, the research will now dwell much to re-iterating and explaining this perspective.

Suffice to close this view is that the human element in organisations is one the sources of complexity. It follows, consistent with Peter Senge's insights - systems thinking is a

requirement in approaching strategy execution challenges in organised complexities like enterprises.

Reverting to the ontological view, organisations exist because people enter into agreements (formal or otherwise) to fulfil a particular purpose. This cooperation (the way of making agreements) requires people (actors) and those actors are not machines nor are they necessarily always predictable. To gain a better control of enterprise, it follows, in addition to the various theories in behavioural sciences there is not to put systems in place to ensure the human resources function working together with the incumbent leadership, bring on board 'the right leaders and functional managers; the right teams and transact with the right partners. As confirmed by the Delphi study, the emphasis should be on clarity of roles, responsibilities, and accountabilities among other elements.

5.3.4 The communication-centric of an organisation

This study also confirmed need to getting the right information to make decisions – specifically checking on what information (type and quality) is being shared; its criticality in the enterprise; the level at which the information is being shared; the language used and the timing of sharing. This validates the importance of the communication centric perspective as advocates of EE argue that the focus of organisational design should shift from process (Fernandes & Tribolet, 2021) and resources to transaction as the impact of intervention is amplified at that level. The study also confirmed the need of integration of information systems to ensure good quality data and real-time access. The fact that at the transaction level they are interaction patterns and commitments among actors it means the how, the quality and timing of communications matters. The impact is even more for elementary actor roles.

5.3.5 Mapping of the sample dominant themes against the cooperation levels

Figure 5.4 below summarise the value of EE by showing the researchers attempt to analyse the underlying drivers of the dominant strategy execution themes as observed by a traditional observer and mapped against an enterprise engineers' perspective. This view shows how EE has inherent methodological capability of tracing or at least making the root cause of some common challenges and/or issues of strategy execution visible.

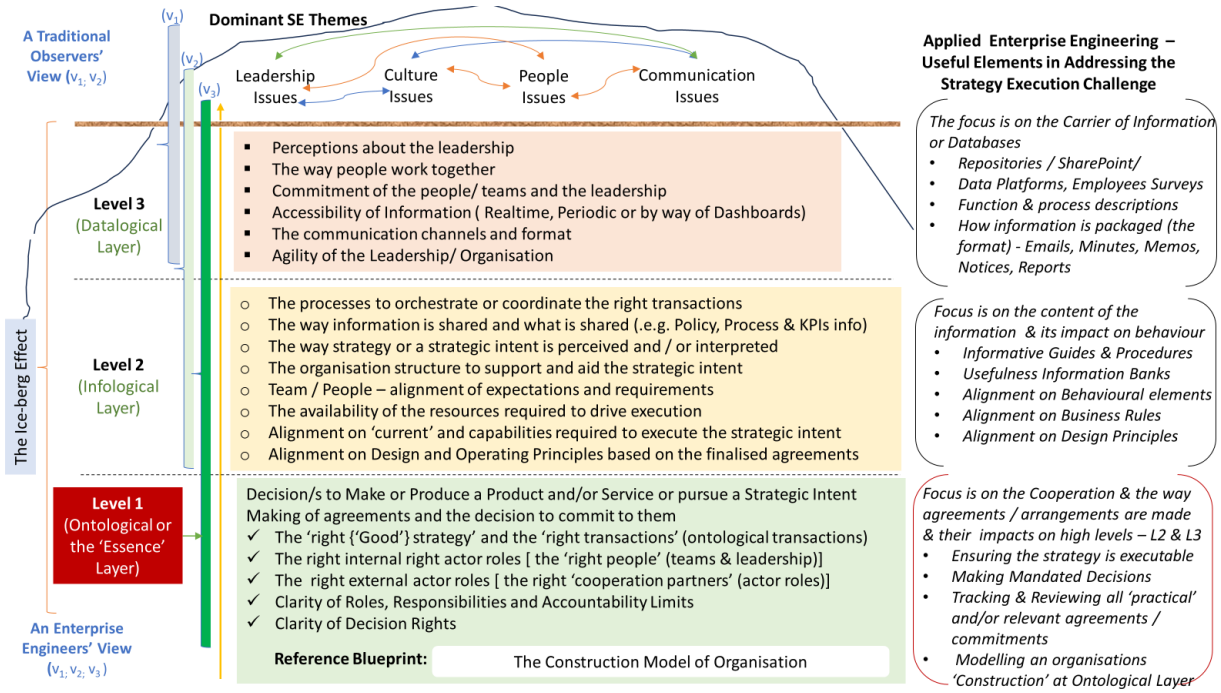


Figure 5.4: ***Mapping of the Sample Dominant Themes against the Cooperation Levels in an Organisation - Enterprise Engineers Perspective*** *(the researcher's illustration)*

5.4 RO#3: To develop an Enterprise Engineering based Strategy Execution framework

As stated in section 5.1.1 objective 3 will be dealt with chapter 6, which shows the path to and presents the EEbSE.

5.5 Implications of these Findings

It should be noted that at this stage the main contribution of this study is to extend application of enterprise ontology theory in a managerial field specifically strategy execution. This thesis has shown the issues and limitations of the existing SE frameworks and that there is no evidence in extant literature of a theoretically grounded generic framework that has been intentionally designed to check implementation readiness. At the same time, it has been shown that strategy execution competence is not by chance or limited to one dimension nor it is a preview of a few elite organisations. The researcher has submitted and argued for the notion that an organisation should be intentionally checked for execution readiness and intentionally designed or redesigned for effective delivery. See section 7.3 for an extended commentary on the contribution.

5.6 Chapter Summary

This chapter discussed the findings of this study guided by the objectives presented in Chapter 1 of this report. Enterprise engineering application examples were given to contextualise the findings. Table 5.1 and Figure 5.4 assisted in giving visibility and traceability of where the various attributes that came out in the findings as presented in Section 4.5 can fit into the cooperation levels of an organisation from an enterprise engineer's perspective.

The next chapter (Chapter 6) proposes the Enterprise Engineering based Strategy Execution framework. .

Chapter 6 – The Strategy Execution Framework

"… we have to go for what we think we are fully capable of, not limit ourselves by what we have been in the past"

(Vivek Paul, 2004)

This harvests from all the preceding chapters and the Delphi study insights (findings and results) to develop the desired enterprise engineering-based strategy execution framework (EE_bSE)

The chapter starts with introductory remarks for the case for a new framework and then outlines the model requirements.

6.1 Introduction to the Model Development

6.1.1 Obligation of the Researcher

The unavoidable questions that arise each time a researcher and / or practitioner proposes a new way of work or framework is to make compelling arguments on two aspects.

(a) Why the need of a new framework?
(b) What does the proposed framework do that which current approaches are failing to accomplish?

6.1.2 The need for another framework | shortfalls of current Frameworks

The need for another SE Framework is not new, nor is the requirement to enhance or tweak the dominant paradigms in these frameworks. It has been widely documented that strategies are failing in execution (Bossidy, et al., 2011; MacLennan, 2011; Venter, 2014; Heesen, 2016; Speculand, 2017; Trafford & Boggis, 2017), and not much has changed (Friesl, et al., 2021; Bawtree & Young, 2022). Even though several interventions have been recommended and administered, statistics still show that as much as two-thirds of strategies fail in execution, and further to that also at least two-thirds of employees think their organisations are complex (McKinsey & Company, 2023). Even with a myriad of implementation models from consulting firms and academia – the success rate of SE remains low. The following points that have been triangulated from the literature and the insights from the Delphi study summarise the need for

a new theoretical framework (Dietz & Hoogervorst, 2015; Janssen, 2016; Trafford & Boggis, 2017; Dietz & Mulder, 2020; Fernandes & Tribolet, 2021; Bawtree & Young, 2022).

(a) Most of the early frameworks and some current frameworks do not pay attention to theoretical underpinnings of implementation rather the work emanates from specific case-based studies where practitioners sought to understand barriers to execution and the 'School of Heuristics' based on experience as presented in Section 1.3 in Chapter 1 of this report .
(b) Unlike strategy formulation where there are various generic frameworks like SWOT Analysis, Porter's Analysis, etc., the absence of theoretical grounding in SE could be attributed to the failure to have a dominant framework in execution.
(c) The current frameworks struggle to deal with complexity and as such, these frameworks outsource the agility/ flexibility requirement to the leadership. In other words, they are not designed for the agility / flexibility requirement.
(d) Implementation models have developed independently and where there is some explanation, the theory is inconsistent, and discipline biased which limits the development of general application theory.
(e) Save for the organisational structure the frameworks assume that the enterprise design (the 'housing of the strategy') is intact and that transactions and the transaction patterns are error free. Further to this these frameworks do not distinguish between what is essential and what is not, hence can be argued to be inefficient.
(f) There is no compelling evidence in literature of strategy execution frameworks that have been designed to not only aid execution but to assess readiness and predict implementation. Put differently, the strategy execution frameworks have limited capability to predict the future.

In view of these points, it is important to state that, the approaches to strategy execution have not significantly changed for the past 4 decades. In the quest to make it visible, 40 years of strategy implementation by Weiser et al., (2020) acknowledge the movement of research focus from the structural control view (e.g., design plans, structures, systems, incentives, and controls) to a more adaptive conception of strategy execution (Weiser, et al., 2020). The structural-control view (SCV) covers works of several authorities [Galbraith & Nathanson (1978); Stonich (1982); Hrebiniak & Joyce (1984); Kaplan & Norton (2008)] while the adaptive turn started with the (Waterman and Philips (1980) with their commonly referred to as the McKinsey 7s., but only picked momentum almost three decades later with the Syrett's

(2007) model and continued with De Flander (2010); McLennan (2011) and many other industry specific models (Olivier & Schwella, 2017). The later (adaptive view) entails how an organisation makes sense of the strategic direction (including related actions) and how it enacts plans in a highly dynamic implementation environment (Weiser, et al., 2020). The advent of strategy-as-practice (S-as-P) harvesting from both worlds (the adaptive and structural view) meant the need of all-encompassing people centric-theories (contingency theory, agency theory, systems theory, and behavioural theories etc.) (Friesl, et al., 2021). This further widened the theoretical lens used in approaching strategy execution, adding to the complexity inherent in strategy execution. Nonetheless the exciting angle of S-as-P is that it mirrors the principles of EE because of its calls for broadening the range of organisational actors to include lower-level managers and strategy recipients in conceptualising plans (Jarzabkowski, et al., 2019). This research effort sought to reduce the complexity of the not-so-well researched element of the role of enterprise ontology in closing the strategy execution gap.

What is needed is a new perspective at which to look at strategy execution. The next section details the case for enterprise engineering as (a) a candidate discipline (domain) to house the theory of strategy execution and (b) a discipline that gives a different theoretical lens capable of providing the necessary insights to predict and influence implementation.

6.1.3 The case for EE (Issues with the Current SE Frameworks/ Approaches)

It has been shown in this study that organisations are still battling the strategy execution challenge with no end in sight. Consistent with recent efforts to understand the challenge with approaches like strategy-as-practise, enterprise engineering offers a new paradigm to zoom into an under researched area at the deepest level in an organisation to see how it can be understood and engineered if necessary to aid implementation. Advocates of EE argue that most challenges that manifest in organisations are consequential, derivatives or follow from the design (the implementation independent – blueprint of the organisation) (Dietz & Mulder, 2020). Dietz (2006 p.12) summarises “The essence of EE is to offer a new understanding …such that one [the enterprise engineer] can look through the distracting and confusing appearance of an enterprise right into its deep kernel, like an x-ray machine… to [allow for a clear view] of the skeleton”. It follows EE enables users to better understand and respond to SE issues more effectively.

1. It enables users to trace strategy execution organisational issues (as an example, ‘an ineffective steering committee’, ‘slow decision making’, ‘vendor performance challenges’ etc.) that appear on the surface (or to the ordinary observer) as a ‘common’ challenge to the source (or the blueprint).
2. Its capacity to make the ‘blueprint of the organisation visible’ also suggests to users where to tweak or manipulate to get the desired output just like in technical or engineered systems. The challenge however lies on architecting the referred to reference wiring diagram (the blueprint).
3. Modelling at the ontological layer starts with construction of the basic transaction pattern and understanding the basics transaction notation as shown in Figure 2.20. {(a) the Order Phase [‘request’ and ‘promise’] (b) the Production Phase where the material or immaterial production takes place (c) the Result Phase [‘state’ and ‘accept’}. The use of such transactions as essential building blocks in an enterprise makes design or analysis of the ‘organisational’ blueprint manageable.
4. Another key assumption that been validated in this study is that the construction and operation model of an enterprise at the deepest layer (the ontological level) drive behaviour and consequently the ways of work of the entity under analysis. This will be shown in Section 5.3.
5. In addition to point 4, above the construction model reveals the essential transactions in an organisation or systems of interest, which allows processes to be derived from that construction – not the other way round. This objective architecting of processes is consistent with authors that advocate for aligning designs, systems, and processes with strategy – for example MacLennan’s (2011) inverted pyramid.
6. As mentioned in the literature review of this study, EE appreciates that every organisation has systematic aspects and characteristics that are dynamic and transform over time – however, an organisation has core elements that it preserves over time: that is its identity, coherence, and integrity. Consistent with point 5 above, the implementation independent core elements are the ones that must be checked before execution to ensure alignment with strategy and readiness for execution.
7. EE also allows for a deeper analysis of resource requirements and allocation be it financial resources or human resources. In other words, for human resources (people) it gives an indication of the key actor roles in transactions, and which allows further strategy execution biased activities to be processed in these roles. In

EE language this also implies that the human resource function or leadership should use the construction model as the primary basis to create role descriptions. This also extends to relationships with external customers and suppliers for all transactions that lie at the boundary of the organisation (Janssen, 2016) [for example … who monitors and controls supplier performance or the obligations of the client (customer)?]

8. Visibility of the construction of an organisation is the basis through which sustainable governance structures are built (Hoogervorst, 2009). For example, an organisation can identify transactions that objectively require additional management at a specific level, be it via a SteerCo, ExCo, Board level or transactions that need to be managed in clusters as they are logically related (Janssen, 2016).
9. Also important, is the capability to reveal construction flaws in an organisation as presented in section 2.5 and Table 2.15 in Chapter 2 of this report.

In summary EE focuses on the core of the enterprise (the essence level) unlike other methods that focus on outcomes and process which are secondary design elements. This leads the researcher to outline 'To Be' third generation SE framework requirements.

6.1.4 EE$_b$SE Framework Requirements

To get to the model requirements it is imperative that this end be reached guided by some overarching principles. Based on the study findings and the review literature (the gaps and insights), the following guidelines will lead to the model requirements:

1. **Essence view**: It should focus on the '*essence of the organisation*' (i.e., it should address the structural issues, such that if addressed has the greatest impact).
2. **Deterministic view**: The framework should be designed to manage complexity and to explain what influences outcomes.
3. **Reflective view**: It should be focus on the '*main gaps'* in current strategy execution focused frameworks and it should be *generic and all encompassing.*
4. **Process view**: The framework should be designed to guide the translation of a strategy into action / practice as such for ease of adoption.

These guiding principles leads to the model requirements, see Table 6.1 below.

Table 6.1 The 'To be' Framework Requirements mapped with respective Guiding Principles

Guiding Principle	Framework Requirement
Essence View	1. Anchored on the ontological layer to allow for resultant or consequential processes, activities & actions to be well grounded 2. Efficient – the framework should be designed to enable distinction between what is essential and what is not.
Deterministic view	3. Should assist with explaining influences on implementation outcomes and hence to an extent predict outcomes. 4. Designed to take of the complexity inherent in organisations and the ability to adapt to the ever-changing environment (agility)
Reflective View	5. Comprehensive - that is incorporate the legacy model components that have been confirmed by the study 6. Concise - should focus on strengthening the ontological layer components as the rest of the components are derivatives
Process View	7. Logical - designed to guide the translation of a strategy into action / practice 8. Simplicity - Should be simple and easy to understand to users and flexible enough for tailoring to specific case/ contexts

6.2 The EEbSE Framework Building Blocks

6.2.1 Framework Depiction (full view)

Based on the above EE_bSE Framework requirements, read together with the findings - triangulated with extant literature on both Strategy Executing and Enterprise Engineering, the framework presented in Figure 6.2 was conceptualised.

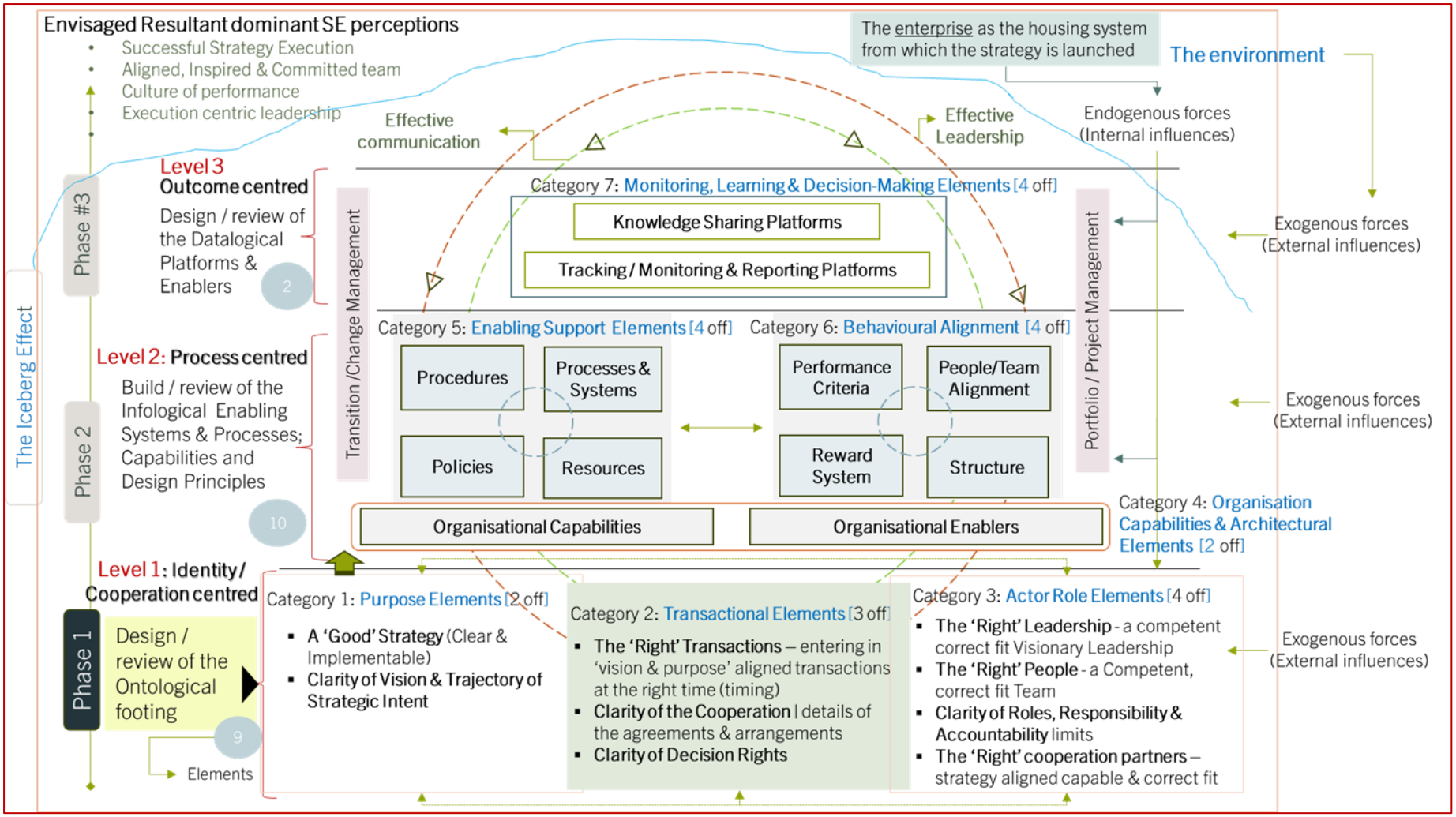


Figure 6.1 ***The EE$_b$SE Framework – full view*** *(developed by the researcher)*

Even though this view incorporates various components that have been proven to be essential for strategy execution; to meet requirement 8 (simplicity) as outlined in Table 6.1, the research provides a succinct version of the framework (see Figure 6.2) in the next section. Nonetheless the full view is meant the give the user or reader a view of the detail in this eight (8) - component truncated view as presented in Figure 6.2 below.

6.2.2 Framework Depiction (truncated view)

Figure 6.2 below shows the truncated model mapped against the cooperation levels.

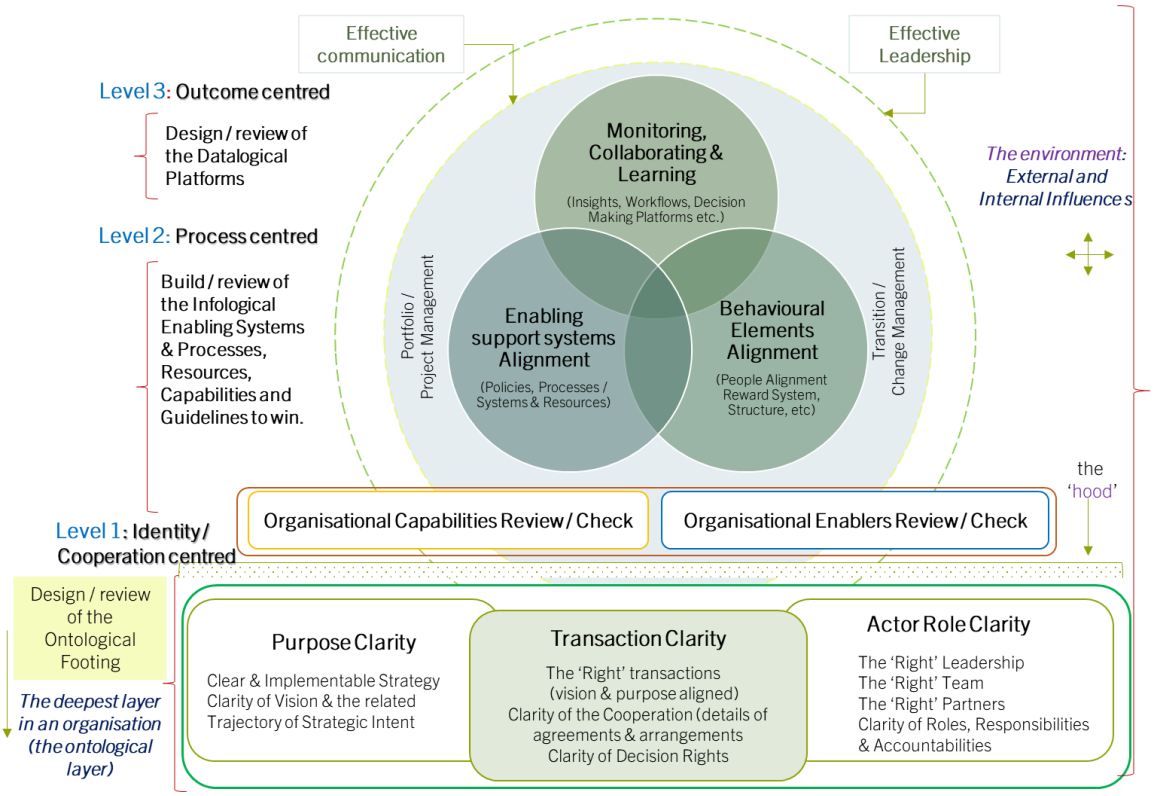


Figure 6.2 ***The Truncated EE$_b$SE Framework with Cooperation Levels*** *(developed by the researcher)*

Cognisant of the fact that not everyone is exposed or knowledgeable about enterprise engineering and to meet requirements 5 and 7 read together the researcher proposes the framework shown in Figure 6.3 as the final output of this work (the generic clean version).

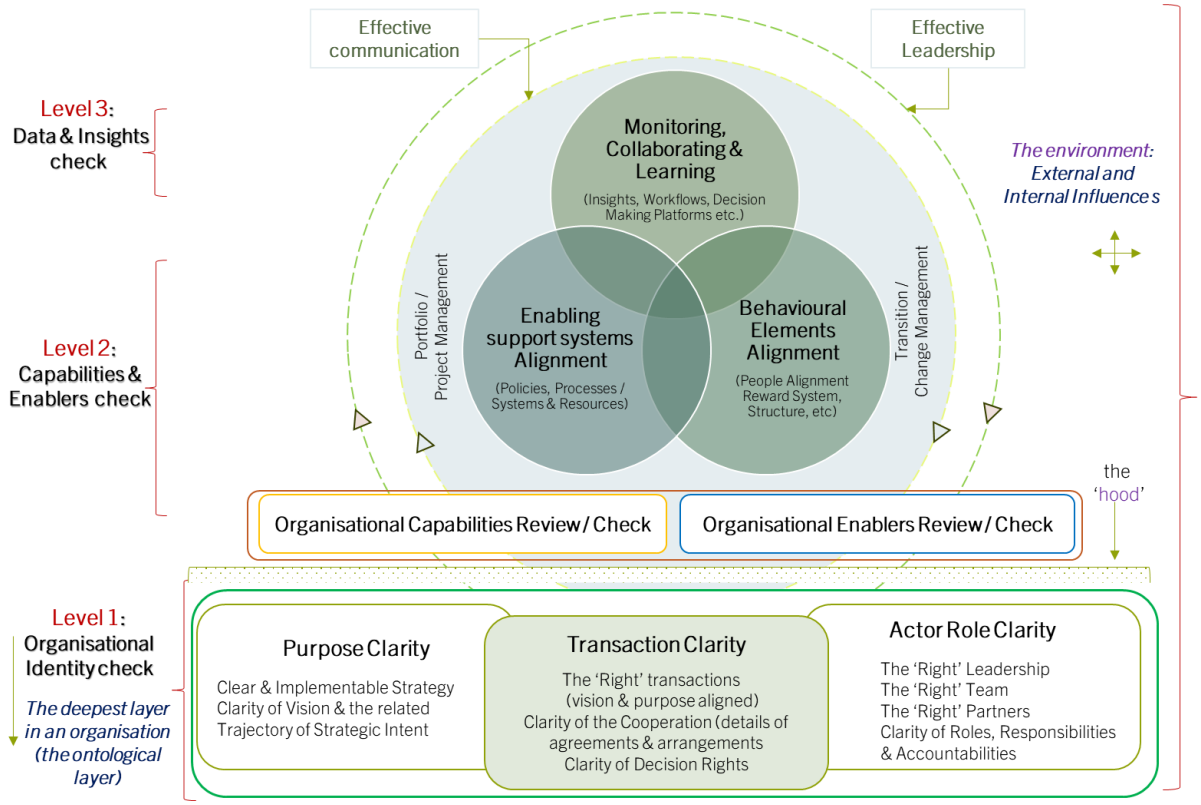


Figure 6.3 ***The Final Truncated EE$_b$SE Framework*** *(developed by the researcher)*

6.2.3 Description of the Framework Components

Note that consistent with the purpose of this study, this framework is designed to either check Strategy Execution readiness, status, or plan for implementation. This model primarily has 8 components – explained below.

Level 1: Organisational Identity Components

(1) **Purpose Clarity**: This component centres on reviewing the strategic intent (or strategy) in line with the overall purpose of the company. In practice, entails, checking for logic / clarity, agility or flexibility of the strategy, quality of the strategic objectives, checking how it aligns with the trajectory of the company. A key element of this component is to check if the strategy has an implementation plan.

(2) **Transaction Clarity**: this entails understanding the construction of the enterprise at the deepest level (the transaction level) – where the cooperation takes place This entails listing all the main transactions; checking if they are the 'right' deals; who the transacting parties are; clarifying decision rights and then mapping the related crucial

agreements and activities that make up the transactions to allow for investigation of design flaws at the ontological layer. In summary the construction model must be made visible.

(3) **Actor Role Clarity**: This component obvious as it might seem is commonly missed as it is normally reflected on in the infological layer. Enterprise engineering dictates that the discussion on the actor roles occur at the ontological layer, this includes – choice of the people: leadership; team, partners – and even strategic suppliers and vendors notwithstanding consideration of governance requirements. Clarity of roles, accountabilities and responsibility must also happen at this stage before upstream processes ensue, like process mapping and debating existence of capabilities or enablers.

Level 2: Capabilities / Enablers Components

(4) **Organisational Capabilities**: This entails identifying and assessing capabilities that the organisation has built over time versus the requirements of the desired strategy (assuming it is a good strategy, that is – it is clear and implementable). This will assist the organisation to know whether to outsource; partner; acquire or to develop (build) inhouse certain capabilities. The cost/benefit exercise of this component if done early might mean abandoning the strategy at no cost.

(5) **Organisational Enablers:** This entails putting in place the necessary support required to successfully execute strategy – this includes but not limited to, organisation structure; performance management systems; tools (digital or otherwise); 'good contracts and support functions like a PMO, a SteerCo - alike. Organisational alignment of these enablers is also vital in particular – alignment of systems, processes and people.

(6) **Enabling Support Systems**: This entails putting in place policies; processes; systems and resources to support strategy implementation. The resource allocation should be proportional to the contribution that is linked to that strategic objectives and a formula may need to be designed to support the decision making on this element. In simple terms, the resource plan must be linked to the chosen strategy. This notion removes biases in resource allocation.

(7) **Behavioural Elements Alignment**: The elements of this composite component are also vital and as shown in the proposed framework (Figure 6.3) they interface with the *Enablers* and the *Monitoring, Collaboration & Learning* component as such alignment of this component with rest of the related elements is required. In practice this includes but not limited to people alignment with the strategy or the strategic intent and putting in place a commensurate reward system among other interventions.

Level 3: Data & Insights Check

(8) **Monitoring, Collaboration and Learning**: This component entails establishing or checking existence and or status of workflows and platforms that allow for monitoring of implementation efforts, collaboration and continuous learning that supports strategy execution. This includes, but not limited to – tracking tools, collaboration tools, decision making dashboards (real-time and lagging), learning from previous implementations and, related knowledge and information banks.

Effective communication and Effective Leadership – these are crucial framework pillars that operate in cyclical manner in all directions (see arrows) at all levels to allow the eight (8) components described above to remain ignited and maintain moment.

The environment – it should be noted that the strategy execution environment is complex and operates in a space where there are positive forces and negatives forces, be they internal (endogenous) or external (endogenous). The onus is on the executing lead to understand these forces and know when to ride onto one and when to take heed.

6.3 Chapter Summary

This chapter presented the EE_bSE based framework on guiding principles from both existing strategy execution frameworks and the ontological theorem of enterprise engineering. As such, the researcher has shown that it is possible to apply enterprise engineering in management science and specifically to resolve the on-going challenge of strategy execution.

The next chapter concludes the study and provides some recommendations.

Chapter 7 – Conclusion & Recommendations

"… often when you think you are at the end of something, you are at the beginning of something else"

(Fred Rogers, 2001)

This chapter presents the conclusion to the research objectives. It also discusses the limitations of this study and the proposed model. It ends by outlining the recommendations for future research.

7.1 Conclusions

The primary objective of this study was to develop an Enterprise Engineering - based Strategy Execution framework. The premise of this objective was that the current strategy execution frameworks / or approaches have persistently failed to address the problem of implementing strategy. Furthermore, there is limited theoretically grounded evidence of research on why companies are failing to deliver or execute strategic initiatives and where there is some progress in developing theory around strategy execution, it is discipline biased. The rise of enterprise engineering and the current research effort in this multi-disciplinary domain provides an opportunity to house the necessary theoretical foundations to understand, design, and model strategy execution.

It is against this background that the researcher sought to develop the 'To Be' 3rd generation strategy execution framework based on enterprise engineering principles and theoretical foundations. The resultant parallel outcome was the contribution to the advancement of the discipline of enterprise engineering by demonstrating the wide application of the theoretical underpinning and principles of this domain.

The primary objective of this study was *to develop an Enterprise Engineering - based Strategy Execution framework.*

To meet the primary objective this study used a two-round Delphi study as the primary research instrument complemented by in-depth literature review. In line with the primary objective, the research pursued three secondary objectives.

1. To identify current issues /challenges in strategy execution.
2. To establish the extent to which Enterprise Engineering principles and theoretical foundations can be useful in developing a framework to drive strategy execution.
3. To develop an Enterprise Engineering *based* Strategy Execution (EE_bSE) framework.

7.2 Summary of the Main Findings

The main findings are summarised by objective.

Objective # 1: *To identify current issues /challenges in strategy execution*

Findings on this objective reveal that there are seven main themes that summarise the issues and challenges of strategy execution. These are (a) the 'Strategy Itself', (b) 'People' (the Team), (c) 'Leadership', (d) Organisational Capabilities, (e) Organisational Enablers (f) Organisational Culture and (g) Effective Communication. Note that the issues outlined above are not in any specific order. Of these issues/ challenges – the Strategy Itself; People and Leadership, were found to be ontological. Ontological in the sense that they are 'original' and not derived from other elements. Put differently, they drive subsequent levels in the cooperation hierarchy of organisations. By way of an example, the 'Strategy Itself' which is linked to the 'purpose' of the organisation was shown to have recurrent issues / challenges on two fronts, (1) poor quality of the strategy and (2) a strategy that does not incorporate the implementation plan. While the 'People (the Team)' component was shown two three primary issues / challenges (1) lack of competent people to do the job, (2) lack of clarity of roles, responsibilities, and accountabilities (3) lack of motivated and inspired team. The last ontological component – 'Leadership' was shown have issues / challenges in three areas (1) leadership lack of understanding of the complexity of strategy execution (2) lack of collective leadership in the implementation phase to facilitate quick and collective decision making, and (3) limited focus on strategy execution relative to strategy formulation. The rest of the main themes are equally important however they were shown to be derivatives or consequential, implying that they reside in the higher layers (Infological and Datalogical).

This synopsis confirms that objective # 1 of this thesis was fulfilled.

Objective # 2: *To establish the extent to which Enterprise Engineering principles and theoretical foundations can be useful in developing a framework to drive strategy execution.*

To meet this objective, the researcher had to first identify the relevant theoretical foundations and principles of enterprise engineering via a structured literature review and then validated them through the Delphi study. The outcome of this effort was four principles and essentials of enterprise engineering clustered in four categories - Category 1: focusing on the essence (the ontological layer) of the organisation; Category 2: the design / engineering requirement of enterprise engineering; Category 3: the human-centric view of enterprises; Category 4: the communication-centric view of enterprises. By way of an example for Category 1: focusing on the 'essence of an organisation entail understanding the importance of all main transactions and their related agreements, their complexity, how they relate, and their impact should something go wrong. In summary this entails understanding the ontological model (i.e. the construction and operational model of an enterprise at the transaction level. All this being done guided by a clear strategic intent and related strategic trajectory. An outline of what it entails for the other three categories is detailed in Section 4.5 in Chapter 4 of this report. The details under these principles are anchored in the *enterprise ontology theorem*.

Accordingly, objective # 2 of this thesis was fulfilled.

Objective # 3: *To develop an Enterprise Engineering based Strategy Execution (EEbSE) framework.*

The desired Enterprise Engineering based Strategy Execution (EEbSE) framework was framed in Chapter 5 of this report (Discussion) with details given in Table 5.1 (Mapping of the Sub-themes to the Cooperation Levels). As expected for any researcher or practitioner intending to introduce new theory or way of work, the researcher felt obliged to make compelling arguments on two aspects, (a) why the need of a new framework and; (b) what the proposed framework / framework related domain does that which current approaches are failing to do. The answers to these questions were given in Section 6.1.2 and 6.1.3 in Chapter 6 of this report. The researcher then outlined the model guiding principles and requirements in Table 6.1, Section 6.1.4. The culmination of this effort led to the development of a detailed EEbSE framework presented in Figure 6.1 and then the truncated working version presented in Figure 6.3. The working model presented in Figure 6.3 has 8 components in line with models seen in extant literature which range from 8 - 15 components for the 2nd generation models (Refer to Figure

2.11 on Chapter of this study). For example, the original McKinsey 7S model has 7 components with the enhanced McKinsey 8S model having 8 components while Kaplan & Norton's model has 9 components.

The desired EE_bSE was developed, and the components explained as such, objective # 3 of this thesis was fulfilled.

This research shows that strategy execution competence is not by chance or limited to one dimension nor a preview of a few elite organisations. An organisation should proactively check for execution readiness and intentionally design or redesign essential elements for effective delivery. A key lesson in this study is that in most organisations the issues that are signed-out to be constraining implementation are described in simplistic terms for example as – *culture issues* yet the perception of solving such, is considered complex as the underlying problems lie deeper in the essence level of the organisation (the ontological layer – the layer where commitments / agreements are made). Put differently the study has shown the indirect impact of elements like clarity of roles and responsibilities; clarity of decision rights; the impact of information systems and entering into correctly framed agreements on successful strategy execution assuming that the actors are competent; have the mandate to perform their tasks (or the transactions) and all other things being equal (leadership included).

7.3 Contribution

7.3.1 Potential Benefits

(a) Practical relevance | Implications to Practitioners in Industry

This study demonstrates how enterprise engineering can be useful in aiding successful strategy execution. A key take-away include the need to check for execution readiness at the ontological layer and eliminating any construction flaws (errors) that will later reflect as common challenges – for example lack commitment [people issues] and an organisational culture that does not aid strategy execution [culture issues]. From a practical perspective this study will increase focus on the design of enterprises and hence follow the same design-based analysis and /or trouble shooting as is done in technical systems. By way of an example a Boiler Plant operator or system owner, generally has a feeling of 'being in control' and is therefore comfortable to effect changes with high confidence levels since such technical system intricacies are referenced to a wiring drawing that guides any intervention. In other words,

technical systems like the referred to Boiler Plant are opaque (also referred to as a 'white box') – a transparent system. On the contrary, enterprises are generally argued to be too complex to visualise inner workings hence [the 'black box' view of organisations]. This thesis positions Enterprise Engineering (EE) as a candidate emerging discipline that aims to uncover the hood (the 'black box') of the organisation and close the gap of intervention (strategy implementation) where there is no clarity of the inner workings or a complete picture of the enterprise.

On the other side (the solution side), this thesis has demonstrated how EE specifically EO can be useful in aiding strategy execution success. Key to the contribution of EE is focusing the implementation effort by (1) anchoring the implementation plan on ontological elements – the essence level; (2) uncovering the hood (the 'black box') of the organisation and hence ensuring intervention (strategy implementation) is done with clarity of the inner workings or a complete picture of the enterprise; (3) the organisational design for strategy execution focus shifts from processes and resources to transaction and their related transaction patterns and lastly (4) the need to review and error-proof the 'as is' the construction model of the organisations at the deepest layer to align with the sought strategic trajectory. Consequently, this study supports – as true, the overarching proposition: '… an organisation can be designed/ or re-engineered for strategy execution'.

It follows this study added a new perspective to framing strategy implementation models to address the commonly accepted industry (public and private sector) problem of having a supposedly elegant well thought strategy and strategic intents but failing in execution (implementation). It is expected that researchers and practitioners will relook at their strategy execution models to test sufficiency and robustness guided by the overarching EEbSE framework presented in Figure 6.3 of this study.

This EEbSE will also be useful in checking implementation readiness or predict probability of success of an intended strategy in a specific context.

(b**) Theoretical relevance | Contribution to the advancement of the Discipline of EE**

Drawing on an extensive literature review this study contributed to the academic world by focusing on framing and packaging the theory of successful execution guided by the theoretical foundations, principles and practices of enterprise engineering while harnessing learnings from systems engineering, project management, operations management, and strategic management. In-light of the known gap and the challenges in strategy execution, the study explored key

theories of enterprise strategy execution focusing on ontological layer – aiming to understand the gaps in the current efforts and to develop an enterprise engineering theoretical framework to drive execution. The findings of this study as outlined in Chapter 4 and reviewed in chapter 5 - ascertain how enterprise engineering provides the needed footing (foundation) to develop specific models or plans for successful strategy execution.

7.4 Limitations

The fact that EE seeks to predict (anticipate) future events presents a theoretical and practice related limitation as compared to revival theoretical lenses like the complexity-theory perspective which is wholly rooted in systems thinking / systems approach. The referred to predictability which is bordered on hard-systems approaches is limited because organisations have high-human activity systems and as such, are unpredictable, have emergent properties, self-organize and learn (Jackson, 2019; Pavlov & Micheli, 2023). In alignment with this thesis Pavlov & Micheli (2023 p.25) clarifies the thinking above and concludes that "approaching organisations as complex systems means that deep knowledge of the system and its context are often necessary – the better one knows the system, the easier it is to envisage what interventions are likely to be effective". This article sees this understanding beyond the ordinary observers' lens but to include the systems interacting within the organisation and the construction model in the ontological layer. As such, it can be argued that the theoretical lens applied in this study complements complex systems theory and vice versa.

Further to the above, the study focused on contributing towards the 'missing' generic strategy execution readiness framework. However, due to the largely qualitative nature of this study and the known fundamental limitations inherent in Delphi studies because of its expert orientation, the study findings are not meant to be generalized. Instead, these findings are meant to demonstrate how, to an extent, existing issues in strategy execution have their genesis or roots in the construction model of an organisation (or the design of an enterprise) at the 'essence' layer (the deepest layer – where agreements and commitments are made). As such, the framework still needs to be tested via various studies, both cross-sectional and longitudinal research. It follows the proposed framework should be used as a guide in tailoring the desired [(CE – BEM)/(PAT)c]c model for a specific context, be it a simple or complex organisation, private or public organisation. Nonetheless, this study adds to the ongoing effort to expand the theory of strategy execution pivoting on a scientific footing.

7.5 Recommendations for Future Research

Future research will be required in a couple of directions. Researchers should consider practical application of the principles highlighted in this study in select organisations and in select industries to check the efficacy of the theory across industries. The design of social component of the enterprise will also need to be further interrogated. Quantitative studies will need to be carried out to test the result industry specific models that cascade from this theory. Each of the 8 components will need to be tested for sensitivity in various contexts. Nonetheless this study adds to the ongoing effort to expand theory of strategy execution from a scientific footing.

7.6 Conclusion

In conclusion, this study has shown the issues and limitations of the existing SE frameworks and has also shown how EE can be useful in increasing the strategy execution success rate by reviewing and error proofing the construction model of the organisations at the deepest layer. Consequently, this study supports – as **true**, the overarching proposition: '… an organisation can be designed/ or re-engineered for strategy execution'.

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Appendices

Appendix A1 - Ethics Clearance Letter

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Mudavanhu

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: H22/03/25**
PROJECT TITLE	Development of an Enterprise Engineering Strategy Execution Framework
INVESTIGATOR(S)	Mr T Mudavanhu
SCHOOL/DEPARTMENT	Mechanical, Industrial and Aeronautical/
DATE CONSIDERED	18 March 2022
DECISION OF THE COMMITTEE	Approved Risk Level: Minimal
EXPIRY DATE	22 June 2025
DATE 23 June 2022	**CHAIRPERSON** _____ (Professor J Watermeyer)

Appendix A2: Participant Information Letter

31/03/2022

Dear Panellist

Participation in a Study on the Design of an Enterprise Engineering *based* Strategy Execution Framework

I am a part-time PhD candidate at the University of the Witwatersrand, under the supervision of Dr Bruno Emwanu. My PhD title is *Development of an Enterprise Engineering based Strategy Execution Framework.*

I would like to formally invite you to participate in this study. As an expert in strategic management processes and/or implementation of complex strategic initiatives your knowledge and experience would contribute significantly to developing and framing the desired Strategy Execution framework. The researcher will employ the Delphi method to synthesise the desired key building blocks and elements of this 'to be' Strategy Execution framework. The study will be conducted between March 2023 and May 2023. Involvement in the study would entail at least two (2) rounds of the Delphi exercise which will be administered via an online questionnaire for your convenience.

The successive Delphi round/s are designed to result in convergence in thought and to find common ground regarding the theoretical foundations of strategy execution and how enterprise engineering principles can be harnessed to aid or influence Successful Strategy Execution. This study seeks to pursue the following objectives:

1. *To determine current issues /challenges in strategy execution.*
2. *To establish the extent to which Enterprise Engineering principles and theoretical foundations can be harnessed for use in developing a framework to drive strategy execution.*
3. *To develop an Enterprise Engineering based Strategy Execution framework.*

The online Delphi questionnaire will take an average of 35 minutes to complete. You will be given 4 weeks to process the questionnaire at any time that suits you.

- *Round 1: statements/questions are presented raw as extracted from literature and will seek your opinion based on your personal experiences in industry / academia. It will include both closed and open-ended statements/ questions.*

  At a later stage:

- *Round 2: Your answers (including those of other experts) from round 1 will be summarised and formulated into a series of more specific questions that you will be asked to comment on or respond to.*
- *As necessary the researcher may request for Round 3 to validate and clarify certain questions. This will depend on whether consensus is reached in Round 2.*

Agreeing to be a panellist in this study and responding to the questionnaire is taken as consent to participate in this process.

Participation in the study is voluntary, and you may withdraw at any time. Anonymity (regarding your organisation, your name or contact details) and confidentiality of information provided will be assured and respected. The data from the questionnaire will be stored securely for a period of 10 years and may be used in conference papers and academic articles.

The results of the study will form part of my PhD thesis and may also be reported in academic papers, university library and at conferences. A summary of the results of the research will be made available to you on request. It should be noted that there are no risks and costs associated with participating in this study.

If you have any questions at any stage and after, about this research, feel free to contact me on the details listed below. For any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email: *hrecnon-medical@wits.ac.za*

I look forward to hearing from you.

Yours faithfully



Tabani B. Mudavanhu (PhD Candidate)
School of Mechanical, Industrial and Aeronautical Engineering
Faculty of Engineering Built Environment
University of the Witwatersrand
Johannesburg, South Africa
Private Bag 3, WITS 2050, South Africa
Tel: +27 82 444 3244
Email: 1498711@students.wits.ac.za / thabanimb@gmail.com

Supervisor: Dr Bruno Emwanu
Tel: +27 11 717 7343
Email: Bruno.Emwanu@wits.ac.za

Appendix A3: Profile of the Study Participants

Expert ID	Qualification	Experience in yrs	Speciality	Background	Current Industry	Place Based
001	Doctorate	20	Strategic Management	Lecturing & Strategic Management Consultant	Academia	Pretoria, South Africa
002	Doctorate	40	Strategic Management & Leadership	Lecturing & Mgmt Consultant	Industry (NGO)	Tilburg, Netherlands
003	Doctorate	30	Strategy Formulation & Execution	Founder/ Mgmt Consulting & Business Process Eng.	Consulting	London, United Kingdown
004	Doctorate	30	Project Mangement & Enterprise Architecture	Industry Director & Mgmt Consultant | Civil Engineering	Industry (Private)	Capetown, South Africa
005	Doctorate	20	Strategy Execution & Change Management	Board Member & Mgmt Consultant	Consulting	Johannesburg, South Africa
006	Doctorate	30	Project Management & Strategy Execution	Industry Director & Mgmt Consultant | Civil Engineering	Consulting	Windhoek, Namibia
007	Masters	25	Strategy Formulation & Execution	Board Member & Executive Leader	Industry (Private)	Johannesburg, South Africa
008	Masters	25	Strategy Formulation & Execution	Board Member & Management Consulting	Industry (Private)	Leeds, United Kingdom
009	Hons Degree	30	Strategic Management & Leadership	Group CEO & Board Member | Digital Technologies	Industry (Private)	Johannesburg, South Africa
010	Masters	30	Strategic Management & Change Management	Mgmt Consulting & Academia	Industry (Private)	Capetown, South Africa
011	Masters	30	Project Mangement & Enterprise Architecture	Change Mgmt Consultant & Coach	Industry (Private)	Lincoln, United Kingdom
012	Masters	25	Strategy Execution & Leadership	Leadership Coach & Transformation Expert	Industry (Private)	Chesterfield, United Kingdown
013	Hons Degree	20	Strategic Management & Leadership	Group CEO & Executive Leader | Manufacturing	Industry (Private)	Harare, Zimbabwe
014	Masters	30	Strategic Management & Leadership	Director of Operations | Banking	Industry (Private)	Hanoi, Vietnam
015	Masters	25	Strategic & Project Mgmt + Enterprise Ontology	Board Member & Executive Leader |Oil &Gas	Industry (Private)	Vancouver, Canada
016	Hons Degree	25	Project Management & Strategy Execution	Executive Leader - Telecoms	Industry (Private)	Manila, Philipines
017	Bachelors	30	Strategic Management & Leadership	Board Member & Executive Leader | Digital Technologie	Industry (Private)	Johannesburg, South Africa
018	Masters	20	Strategy Execution & Change Management	Board Member & Mgmt Consultant	Consulting	Johannesburg, South Africa
019	Masters	25	Project Management & Strategy Execution	Board Member & Executive Leader | Banking	Industry (Private)	Harare, Zimbabwe
020	Hons Degree	10	Manufacturing Strategy & Production Mgmt	Manufacturing Projects & Operations Management	Industry (Private)	Johannesburg, South Africa
021	Masters	15	Strategy Execution & Project Management	Academia and Management Consultant	Academia	Windhoek, Namibia
022	Masters	20	Strategic Management & Leadership	Executive Leadership & Consultant	Industry (NGO)	Johannesburg, South Africa
023	Masters	15	Strategic Management & Project Management	Entreprenuer, Executive Leadership & Consultant	Industry (Private)	Johannesburg, South Africa
024	Masters	15	Strategic Management & Organisational Design	Board Member & Mgmt Consultant	Industry (Private)	Riyadh, Saudi Arabia & Singapore
025	Masters	20	Strategic Management	Entreprenuer, Executive Leadership	Industry (Private)	Johannesburg, South Africa
026	Masters	25	Strategic Management	Director of Operations	Industry (Private)	Johannesburg, South Africa & UAE
027	Doctorate	20	Strategy Execution, Project Management	Lecturing and PMO Leadership	Industry (Government)	Johannesburg, South Africa
028	Masters	30	Strategic Management & Leadership	Board Member, Executive Leadership & Manufacturing	Industry (Private)	Detroit, USA
029	Masters	25	Strategic Management	Executive Leadership & Manufacturing	Industry (Private)	Johannesburg, South Africa
030	Masters	20	Strategic Execution & Enterprise Architecture	Management Consulting & Strategy Execution	Industry (Private)	London, United Kingdom
031	Masters	20	Executive Coach for Corporate Transformations	Organisational Design and Corporate Transformation	Industry (Private)	Frankfurt, German
	Combined Expert Experience	**745**				
	Average Expert Experience	**24**				

Appendix B1: Delphi Round One (1) Survey Questionnaire

For Official Use

Questionnaire #	Reference:	Date	

Study Purpose: The purpose of this study is to understand how the success rate of strategy execution can be improved through the application of enterprise engineering principles and practices.

- You may refer to the attached overview of the key tenets of Enterprise Engineering

ETHICAL CONSIDERATIONS

1. Your responses are going to be used for academic purposes only.
2. Confidentiality and anonymity are going to be strictly maintained.

INSTRUCTIONS

1. Please do not let any other individual fill in the questionnaire on your behalf if you have opted to fill it.
2. This questionnaire has three sections:
    - **Section A**: Demographic Information.
    - **Section B** to **E**: Closed Sub-questions derived from the hypothesis premises.
    - **Section F** & **G**: Open-end questions which aim to address all areas of the study. objectives and any other issues of interest on the matter under study.

This survey questionnaire should take you around 25 minutes to complete.

Section A: Demographic Information

This section intends to gather demographic information which will assist to contextualize and validate this study.

A1: Industry and Current Role/ Engagement(s) of the Panelist

Please mark with a cross (x) in the appropriate boxes in the table below for the role that best describes your specialty. Mark a maximum of two per attribute asked.

Current role	Academia	Consulting	Industry (private)	Industry (NGO)	Industry (Government)
Board Member					
Executive Leader					
Senior Manager					
Practitioner					

A1: Areas of Interest of the Panelist

Please mark with a cross (x) or a tick (√) in the appropriate boxes in the table below to indicate your areas of interest specialty. Mark at least one (1) and a maximum of three (3).

Area of interest	
Strategic Management	
Strategy Formulation	
Strategy Execution	
Organisational Design	
Change Management	
Project /Programme Management	
Enterprise Architecture	
Enterprise Ontology	
Enterprise Engineering	

A2: Years of Experience

Please mark with a cross (x) in the appropriate boxes in the table below for the years of experience you have in *Leadership role* and *specific to Strategy Execution*. Mark one box only per attribute asked.

Years of Experience	5 – 10 years	11 – 15 years	16 – 20 years	21 - 25 years	26 - 30 years	31+ Years
Leadership /Senior Management						
Strategy Execution						

A3: Academic Qualification

Please mark with a cross (x) in the appropriate box to indicate the highest qualification you have. Mark one box only.

Qualification	Mark (x)
▪ *Doctorate*	
▪ *Master's Degree*	
▪ *Hons. Degree*	
▪ *Bachelor's degree*	
▪ *Other (if other – provide details below)*	

A4: Study Focus Areas of Strength for the Panelist

Please mark with a cross (x) or a tick (√) on your corresponding answer in the appropriate box. Mark one box only per attribute asked for.

Indicate your strength in any of these areas	1 (**Weak**)	2	3	4	5 (**Very Strong**)
Strategy Formulation					
Strategy Execution					
Organisational Design					
Strategic Management					
Change Management					
Project /Programme Management					

Section B: The Relationship Between Enterprise Design and Strategy Execution

This section explores *the extent to which the success of strategy execution is depended upon the design of the enterprise. Wherein the design refers to all the facets of an enterprise (e.g., processes, structures, governance etc.) and their relationships.* **Please indicate the extent to which you agree or disagree with each statement by marking (X) or ticking (√) on your corresponding answer.**

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4= Agree **5 = Strongly agree**		1	2	3	4	5
EDSE1	Not all enterprises are designed to facilitate successful strategy execution.					
EDSE2	The way enterprises are designed have a bearing on the probability of successful strategy execution.					
EDSE3	A 'good strategy' will be successfully executed irrespective of how the enterprise is designed.					
EDSE4	A well-designed enterprise could facilitate the successful execution of a 'bad strategy'.					
EDSE5	Successfully strategy execution requires focus on both the enterprise's technical systems and social systems.					
EDSE6	The complexity of designing the social systems of the enterprise limits the degree to which the success of strategy execution can be improved.					
EDSE7	The design of the communication systems within an enterprise influences the success or failure of strategy execution.					
EDSE8	The architecture of an enterprise (the wiring diagram) gives insight into whether a given strategy can be successfully executed.					

Section C: Reflecting on Elements that Determine the Success of Strategy Execution

This section explores *the fundamentals elements that determine the success of strategy execution in any enterprise*. **Please indicate the extent to which you agree or disagree with each statement by marking (X) or ticking (√) on your corresponding answer.**

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4= Agree **5 = Strongly agree**		1	2	3	4	5
FESE1	Enterprise Architecture is key to exposing the fundamental elements that drive the success of Strategy Execution.					
FESE2	Having the right culture is fundamental to the successful execution of any strategy.					
FESE3	Organisational structure (the organogram) is key to the successful execution of any strategy.					
FESE4	Project and change management are key to the successful execution of any strategy.					
FESE5	Communication and information flow is key to the successful strategy execution of any strategy.					
FESE6	KPIs and use of a balanced scorecard is key to successful strategy execution of any strategy.					
FESE7	Having IT and Digital capabilities are key to successful execution of any strategy.					
FESE8	Visionary leadership and effective management are key to the successful execution of any strategy.					

Section D: Useful Enterprise Engineering (EE) Principles/ Elements Required to Close the Strategy Execution Gap

This section explores *the principles and practices of Enterprise Engineering that enable Successful Strategy Execution and assesses the responsiveness of an enterprise to a chosen strategy.* **Please indicate the extent to which you agree or disagree with each statement by marking (X) or ticking (√) on your corresponding answer.**

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4= Agree **5 = Strongly agree**		1	2	3	4	5
UEEP1	Enterprise Engineering acknowledges that organisations are organised complexities (complex social-technical systems) as such appreciation of this and its use of Systems Thinking as reference framework makes this emerging discipline an enabler for successful Strategy Execution (SE).					
UEEP2	Enterprise Engineering views organisations as a transparent 'white box' as opposed to a 'black box' which gives visibility to the enterprise design elements. As such, this perspective makes Enterprise Engineering a suitable candidate to house the theory of Strategy Execution.					
UEEP3	Enterprise Engineering focuses on understanding the *construction* and *operation* elements of an enterprise at the transaction level (the deepest layer) hence avoids prescribing solutions based on symptoms – consequently it can be argued that this enables successful Strategy Execution.					
UEEP4	Enterprise Engineering enables visibility and clarity of an enterprises' construction elements and construction flaws (if any) and therefore provides a basis to judge how an enterprise will respond to a chosen strategy and the probability of successful Strategy Execution thereof.					
UEEP5	Understanding the ontological model (that is the construction and operation model) of an enterprise at the transaction / cooperation level considerably reduces complexity inherent in Strategy Execution and hence makes the implementation more manageable.					
UEEP6	Because Enterprise Engineering shows the inner construction architecture of an organization it follows by design it brings better control (a state of being in control) of Strategy Execution just like any technical system (for example the blueprint drawings of automotive transmission systems give one a sense of control when troubleshooting).					
UEEP7	Enterprise Engineering focuses on Cooperation (communication, information sharing and agreements) at the deepest layer which is the foundation of any business and is critical for transactions. Since EE is centred on this essence level it houses the foundational elements which should be inspected for Strategy Execution readiness.					
UEEP8	Several management disciplines have attempted to build theories on Strategy Execution challenges focused on various elements with little attention given to the 'enterprise' as the housing systems through which a strategy is launched. Among many disciplines Enterprise Engineering					

	is a strong contender to house the theory of Strategy Execution as it focuses on the enterprise as the System of Interest.					

Section E: The Influence of Deliberate Re-engineering Specific Components of an Enterprise on Successful Strategy Execution

This section explores *the significance of re-engineering specific components of the enterprise on successful strategy execution and how that can be useful to influence the success of the intended strategy.* **Please indicate the extent to which you agree or disagree with each statement by marking (X) or ticking (√) on your corresponding answer.**

1 = Strongly disagree, 2 = Disagree, 3 = Slightly agree, 4= Agree **5 = Strongly agree**		1	2	3	4	5
IDRE1	We have always observed organisations intentionally redesigning / reengineering their organisations as a key activity or process step prior to Strategy Execution.					
IDRE2	Enterprise architecture is key in revealing the business process blueprints in an enterprise and by extension the readiness of the enterprise to launch the intended or the chosen strategy successfully.					
IDRE3	The description of the implementation process on its own without reflecting on the architecture of the enterprise is too simplistic and does not reduce the complexity of Strategy Execution, as such it is important to link that layer with the layer where commitments are made.					
IDRE4	By revealing and aligning processes that lead to formalisation of transactions - the processes leading to and the execution of those agreements (e.g., partnership, sales, services agreements etc.) practitioners can successfully influence Strategy Execution.					
IDRE5	Flaws or issues (the elementary construction errors) in the construction of the cooperation at the transaction layer (the agreements layer) - for example errors is *contracts* directly impacts Strategy Execution.					
IDRE6	By tracking and timely reviewing all key agreements in an organisation including their relationships prior to launching a strategy, enterprise engineers can, to an extent, influence Strategy Execution,					
IDRE7	Reviewing the enterprise 'construction and operation' models is essential for Successful Strategy Execution irrespective of the intervention you want to administer or the type of strategy to implemented.					
IDRE8	To prepare an organisation or to check readiness for Successful Strategy Execution – the first steps is to expose the 'AS IS' and move the 'TO BE' transaction level construction models and then map out ways to compensate for the areas that the enterprise does not have the required capabilities.					

Section F: Organisational Capabilities needed to Successfully Execute strategy

This section explores the capabilities needed to successfully execute strategy, in addition to those of enterprise engineering.

1) *Give at least three (3) capabilities that you consider to be needed for the Successful Execution of Strategy.*

(a) ……
……

(b) ……
……

(c) ……
……

(d) ……

Section G: Building an Enterprise Engineering enabled Strategy Execution Framework

This section explores what an enterprise engineering enabled strategy execution framework should contain.

Please elaborate in your own words your understanding of the various issues asked for below.

1) In your view why is strategy execution an on-going challenge in most enterprises? [State at least three (3) distinct views]

a) ……
……

b) ……
……

c) ……
……

d) ……

2) *What do you consider as the main limitations of the current strategy execution frameworks?*

a) ……
……

b) *……*

……

c) *……*

……

3) Based on what you know and understand now, what aspects of enterprise engineering do you consider positively contribute to increasing the success of strategy execution?

[If any, state at least two (2) distinct points]

a) *……*

……

b) *……*

……

c) *……*

……

4) *In your view what <u>other aspects</u> <u>of strategy execution</u> do you believe the research should address.*

i. *……*

……

ii. *……*

……

iii. *……*

……

Thank you for your participation and valuable feedback.

Appendix B2: Delphi Round Two (2) Survey Questionnaire

For Official Use

Questionnaire #	Reference:	Date	

Study Purpose: The purpose of this study is to understand how the success rate of strategy execution can be improved through the application of enterprise engineering principles and practices.

- *This questionnaire is a follow-up to the Delphi Round-1 questionnaire and the resultant emerging themes. Note that Round 1 questions were derived from a structured literature review (SRL) which the researcher assumed requires further investigation. The open-ended questions in Round 1 were meant for the experts to suggest other areas that the researcher might have missed.*
- *Delphi Round-2 is designed to allow the experts to review and validate their combined responses. Put differently, your answers (including those of other experts) from round-1 were summarized and formulated into a series of more practical specific questions that you are being asked to comment on, respond to or sustain.*

ETHICAL CONSIDERATIONS

3. Your responses are going to be used for academic purposes only.
4. Confidentiality and anonymity are going to be strictly maintained.

INSTRUCTIONS

- Please do not let any other individual fill in the questionnaire on your behalf.
- This questionnaire has six sections (A to F) covering only closed questions.

This survey questionnaire should take you about 25 - 30 minutes to complete.

Section A1: Clarity on Constructs that did not Achieve Consensus in Delphi Round 1

This section explores *experiences of Organisational Elementary Construction Flaws (ECFs)* ***in practice*****. On a scale of 1 to 7** with (1) being 'Not true and (7) being 'Very True'**, how 'true' are the following assertions / claims with respect to Successful Strategy Execution?**

	1 = Not true 4 = Neutral **7 = Very True**	**1**	2	3	**4**	5	6	**7**
CCAC1	A 'Bad Strategy' cannot be successfully implemented even though the enterprise is well-designed.							
CCAC2	Reviewing the organisational structure is to an extent important in aiding Successful Execution of a strategic intent.							
CCAC3	Flaws or errors in the construction of the cooperation at the transaction layer (the agreements layer) in an organisation directly impacts Strategy Execution*. - for example, errors in contracts.*							
CCAC4	By tracking and timely reviewing all key agreements in an organisation including their relationships prior to launching a strategic initiative, practitioners can, to an extent, influence Strategy Execution.							
CCAC5	Reviewing the enterprise 'construction and operation' models is essential for Successful Strategy Execution irrespective of the intervention you want to administer or the type of strategy to implemented.							
CCAC6	Investing time and effort in putting contracts in place and fixing contractual flaws will reduce time spent fixing issues that could arise should the referred contracts had flaws or were not in executable versions.							
CCAC7	Enterprise Engineering enables visibility and clarity of enterprises' construction elements and construction flaws (if any) and therefore will to an extend provide a basis to judge how an enterprise will respond to a chosen strategy and the probability of successful Strategy Execution thereof.							
CCAC8	Several management disciplines have attempted to build theories on Strategy Execution challenges focused on various elements with little attention given to the 'enterprise' as the housing systems through which a strategy is launched. As such, among many disciplines Enterprise Engineering is a strong contender to house the theory of Strategy Execution as it focuses on the enterprise as the System of Interest.							

Section A2: Experts' Synthesized Emerging Themes to aid Strategy Execution

This section explores *dominant themes from Round 1 that the experts highlighted as necessary to aid Successful Strategy Execution in practice.* **On a scale of 1 to 7** with (1) being **'***Not at all Important'* and (7) being *'Very Important'***, how important are the following attributes / assertions in aiding Successful Strategy Execution**?

1 = '*Not at all Important*' 4 = Neutral 7 **=** 'Very Important'		**1**	2	3	**4**	5	6	**7**
ESET1	How important is the capability to Visualise and Solve the Future State of the organisation (i.e., Clarity of Vision, Clarity of Goals and Clarity of the Trajectory to the Desired State)							
ESET2	How important is the Ability (Competence) to develop a clear & compelling Strategy 'A Good Strategy' (i.e., convincing set of strategic choices of 'Win' of to remain sustainable)							
ESET3	How important is the capability to check the Strategy for Implementation Readiness (i.e., the capacity to forensically analyse the formulated strategy)							
ESET4	How important is clear understanding of Existing Capabilities on the Current Architecture & the Capability to understand what is required for the desired Future State & what capabilities should be retired.							
ESET5	How important is the capability to move from Feasibility Studies Stage (Conceptual Studies, Business Case Generation etc.) through Development to Execution.							
ESET6	How important is Data Mastery, Digital Capabilities & Digital Congruence (i.e., alignment of culture, people, structure, and tasks within the Digital Environment).							
ESET7	How important is the capability to Learn as organisation – that is the ability to deconstruct the steps undertaken and learn from the past (what worked and what did not).							
ESET8	How important is Ability to on-board key Stakeholders with the requisite character & charisma to influence everyone or at least the majority to contribute towards the Desired Strategic Trajectory.							

Section B: Fundamental Conditions of Success of any Strategy Execution Effort

This section explores *the importance of specific Basic Conditions of Success of any Strategy Execution effort.* **On a scale of 1 to 7 with** (1) *being Strongly Disagree* and (7) *Strongly Agree***, please rate the extent to which you agree or disagree with each statement.**

1 = Strongly Disagree, 2 = Disagree, 4 = Neutral, 6 = Agree 7 **= Strongly Agree**		1	2	3	4	5	6	7
FCSE1	'Clarity of the details of Transactions' (at least the 'vital' ones) that an organisation has entered or is in discussions is fundamental in checking how that entity will Successfully Execute Strategy.							
FCSE2	'Clarity of Decision Rights' for individuals or groups tasked with driving Strategy Execution (i.e., Who decides over which decisions, what decisions must be made, and how the decision-making process should work) is key for successful Strategy Execution.							
FCSE3	When the strategy changes, it is necessary to review the *operating model and design principles* to guide the transition to the new or desired strategic intent.							
FCSE4	Reviewing the current 'Organisational Capabilities' and acquiring the right capabilities in line with the strategic intent is a critical condition for successful Strategy Execution.							
FCSE5	When changing or launching a new strategy, it is highly likely that new and/ or different capabilities will be required, and the influence of legacy capabilities may need to be reduced or retired							
FCSE6	Experiencing the future (this could be through prototyping; simulations, conducting a proof of concept or a pilot project) when introducing a new intervention or strategic initiative is critical in aiding Strategy Execution.							
FCSE7	Listening to what employees are saying and the way they speak can give an indication on whether the trajectory of strategic intent is changing or moving in the desired path.							
FCSE8	Leadership alignment on either the strategic intent or the related trajectory by which the strategy will be realized is a critical condition for successful Strategy Execution.							

Section C: Clarity of Organisational Construction at the deepest level (the Ontological layer)

This section explores *the importance of Clarity in an Organisations' Construction at the deepest layer (the Ontological level).* **Please rate the extent to which you 'agree' or 'disagree' with each of these statements.**

1 = Strongly Disagree, 2 = Disagree, 4 = Neutral, 6 = Agree 7 **= Strongly Agree**		1	2	3	4	5	6	7
COCO1	Signed agreements (for example execution version SLAs or Contracts) and the architecture of the cooperation detailed in these agreements is a vital foundation for successful Strategy Execution.							
COCO2	'Transactions' (that is the way commitments / agreements) are brought about and the complexity of the transactions (scale, number, the interfaces, actors & stakeholders involved) has a direct bearing on the complexity of the Strategy Execution effort.							
COCO3	Incorporating Strategy Execution compatibility elements upfront in all transactions an organisation is working on will assist in designing possible down-stream implementation stage complexities that may impact successful Strategy Execution.							
COCO4	To understand the readiness to execute strategy, there is need to review processes to understand what information is being shared and its criticality for managing the cooperation between parties (within & external to the organisation).							
COCO5	The transactions initiators and executors (the main actors in any strategic transaction) must have Capacity or be Competent; their Responsibilities clearly outlined and must have the Authority or Mandate to execute or negotiate on behalf of the transacting party.							
COCO6	Deliberate review of the composition of Strategic Initiatives Implementation Boards - e.g., a Project Steering Committee or a Change Control Board is key to ensure that the 'right' individuals with vested interests in accelerating implementation are on board.							
COCO7	Integrating an organisations' information systems; ensuring the data in the information systems is of good quality and that the data which is key for decision making is accessible in real-time is fundamental in aiding Successful Strategy Execution.							
COCO8	To understand the quality and integrity of '*cooperation*' as an anchoring pillar in Strategy Execution, there is need for leaders to know and understand how people communicate, the 'what' in the information is being shared, the timing of sharing and the level at which the info is being shared.							

Section D: Organizational Alignment of various Systems required for Strategy Execution

This section explores *the importance of Aligning various Organisational Systems required for successful Strategy Execution.* On a scale of 1 to 7 with (1) being '*Not at all Important'* and (7) being '*Very Important'*, **how important are the following attributes / assertions in aiding Successful Strategy Execution?**

1 = '*Not at all Important'* 4 = Neutral 7 **=** 'Very Important'		**1**	2	3	**4**	5	6	**7**
OARE1	How important is creating 'clarity of the mission (the strategic intent and the strategic trajectory)' and the resultant responsibilities as a foundation for change management?							
OARE2	How important is 'timely access' to clear and unambiguous information as a requirement for institutionalisation of a strategic initiatives?							
OARE3	How important are 'agreements' as an enabler of effective communication process in projects with several parties e.g., Building a Soccer World-cup stadium or Building a Tax Returns e-filling system for the Tax Authority?							
OARE4	How important is 'Task or Role Ownership' as a first step to creating an *organisational culture* of accountability which is a necessary condition for Successful Strategy Execution?							
OARE5	How important is resourcing (allocating adequate budget to) the Architecture / Design / Planning departments in order to design out downstream challenges and to ensure they realise their responsibility to reduce complexity in systems designs?							
OARE6	How important are functions or departments which manage and enforces rules & procedures that are applied to the organisation as an aid in Executing Strategy - for example a Project Management Office (PMO) or an IT Governance Office (the Enterprise Architecture function)?							
OARE7	How important is clarity in actors' roles (that is clarity of responsibilities and accountabilities of the 'right' people) in aiding a 'good' corporate culture and reducing work politics?							
OARE8	How important is understanding and objectively testing technical complexity of applications (Apps) during the Development phase (i.e., checking the number of parts, the number of interfaces and how they relate before finalising development)?							

Section E: Experiences of some Organisational Elementary Construction Flaws (ECFs)

This section explores *experiences of some Organisational Elementary Construction Flaws (ECFs)* ***in practice*****.** On a scale of 1 to 7 with (1) being 'Not at all' and (7) being 'Most of the time'**, to what extent have you witnessed the scenarios outlined below?**

1 = Not at all, 2 = Rarely, 4 = Neutral, 6= Sometimes **7 = Most of the time**		**1**	2	3	**4**	5	6	**7**
OECF1	I have always observed organisations intentionally redesigning / reengineering their organisations as a key activity or process step prior to launching a Strategic Initiative (Implementing Strategy)							
OECF2	In my current or previous work, I have witnessed a scenario where two parties to a transaction sign an agreement with supposedly clear deliverables but upon delivery, the client side (the requester) is totally unhappy or feels he was not heard.							
OECF3	In my experience I have witnessed a scenario wherein the responsibilities of specific actions / tasks are not clear, by way of an example – whether the task to be done is for the Facilities Department or HR or for ICT Helpdesk.							
OECF4	In my current or previous work, I have witnessed job review exercises exposing a significant mismatch between the Job Description shared by HR and what the employees actually do.							
OECF5	In my experience I have seen organisations investing in initiatives to reduce complexities in IT systems for example having dedicated resources focusing on complexity reduction in the IT Architecture department of the organisation.							
OECF6	In my experience I have seen two individuals or departments working on the same strategic initiatives without each other knowing, therefore unknowingly performing 'double work.							
OECF7	In my experience I have seen different executives working on the same strategic initiative unknowingly, hence costing the organisation precious executive time and resources.							
OECF8	In my experience I have seen organisations introducing 'in fashion' methodologies like Agile/ Scrum or the Lean Approach or X or Y without first objectively checking the suitability of that tool or approach for the context in question. (This in some cases leading to the organisation formally or informally abandoning the initiative/s within a few months of implementation).							

Section F: Delphi R1 – Other Expert Synthesized Emerging Themes in Strategy Execution

This final section explores *dominant themes that emerged from Delphi Round 1 that the experts declared as limiting the current efforts to Execute Strategy Successfully in practice.* **On a scale of 1 to 7 with (1) being '***Not at all Important'* and (7) being *'Very Important'***, how important are the following attributes / assertions in aiding Successful Strategy Execution**?

1 = '*Not at all Important'* 4 = Neutral 7 **=** 'Very Important'		**1**	2	3	**4**	5	6	**7**
OSET1	Risk Management including addressing Corruption.							
OSET2	Adaptive Business models that future proof the business.							
OSET3	Putting in place the right performance incentives to aid execution.							
OSET4	Consideration of Cyber Security as a key element in the Implementation Plans.							
OSET5	Professionalism rather than patronage or populism (Evidence based decision-making rather than ideology).							
OSET6	Appreciation and / or adoption of new inventions in the Digital Space - e.g., Artificial Intelligence to aid Strategy Execution.							
OSET7	Effective allocation of resources (human, financial, technological, infrastructure, etc.) – dedicated adequate resources to Execution							
OSET8	Addressing the culture of entitlement and enforcing consequences for lack of delivery (lack of commitment)							
OSET9	Capability to manage People and Build systems to aid Trust within the organisation involving those at the 'coal face' or the shop floor.							
OSET10	The 'Strategy Execution Framework' should be designed from a Systems View (i.e., reflects & understands the 'internal & external' actors, the interfaces, interests, impacts etc.) and should have practical models built-in for continuity of Political, Legal & Fiscal conditions.							

Section G: Building an Enterprise Engineering enabled Strategy Execution Framework

Share any point of interest that you as an expert would like explored in further research on Strategy Execution. If none you may leave blank.

I. ……...

II. ……...

III. ……...

Thank you for your participation and valuable feedback.

Appendix C: Delphi R#1 _ Raw Data Analytics Dashboard

Note that,

a. Thirty-one (31) Experts participated in this round.
b. Delphi Round 1 was based on a 5 point – Lickert scale with one (1) indicating strongly disagree and five (5) strongly agree.
c. The 5-point scale was used to encourage participation as it is simple as the target group were largely c-suite level and had busy daily schedules.
d. The results of this rough are outlined below as extracted from the bespoke Delphi study portal. Note that section A covers demographics.

DR#1: Section B

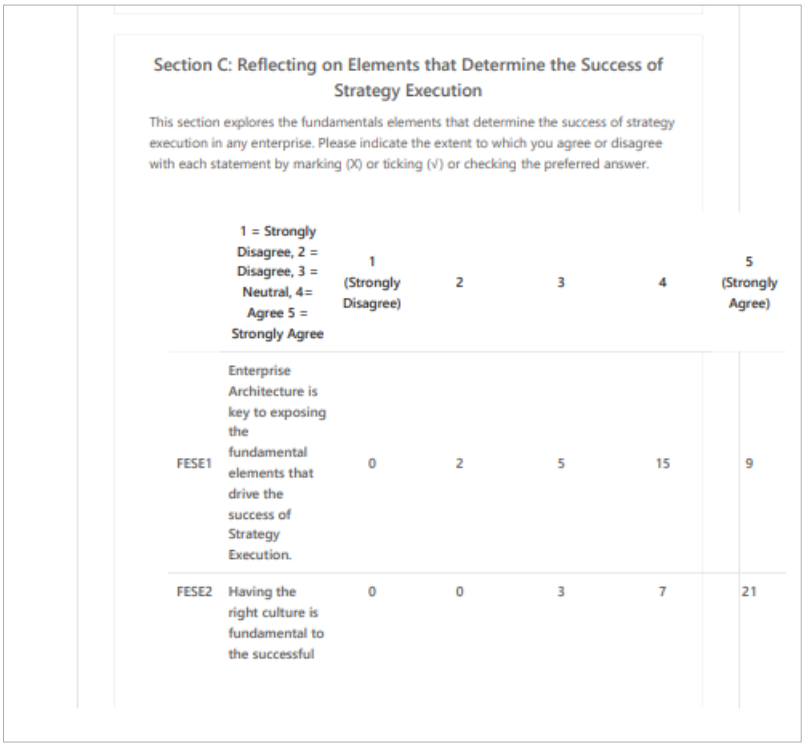
B1: Perceptions on the current Status of Strategy Execution

	1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4= Agree 5 = Strongly Agree	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
EDSE1	Not all enterprises are designed to facilitate successful strategy execution.	1	2	1	13	14
EDSE2	The way enterprises are designed have a bearing on the probability of successful strategy execution.	0	0	5	8	18
EDSE3	A 'good strategy' will be successfully executed irrespective of how the enterprise is designed.	13	13	4	1	0
EDSE4	A well-designed enterprise could facilitate the successful execution of a 'bad strategy'.	2	8	8	12	1
EDSE5	Successfully strategy execution requires focus on both the enterprise's technical systems and social systems.	0	0	1	17	13
EDSE6	The complexity of designing the social systems of the enterprise limits the degree to which the success of	0	4	8	16	3

	1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4= Agree 5 = Strongly Agree	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
	strategy execution can be improved.					
EDSE7	The design of the communication systems within an enterprise influences the success or failure of strategy execution.	0	0	3	11	17
EDSE8	The architecture of an enterprise (the wiring diagram) gives insight into whether a given strategy can be successfully executed.	0	3	4	15	9

< 1 >

DR#1: Section C



Section C: Reflecting on Elements that Determine the Success of Strategy Execution

This section explores the fundamentals elements that determine the success of strategy execution in any enterprise. Please indicate the extent to which you agree or disagree with each statement by marking (X) or ticking (√) or checking the preferred answer.

	1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4= Agree 5 = Strongly Agree	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
FESE1	Enterprise Architecture is key to exposing the fundamental elements that drive the success of Strategy Execution.	0	2	5	15	9
FESE2	Having the right culture is fundamental to the successful execution of any strategy.	0	0	3	7	21
FESE3	Organisational structure (the organogram) is key to the successful execution of any strategy.	0	2	11	14	4
FESE4	Project and change management are key to the successful execution of any strategy.	0	0	5	16	10
FESE5	Communication and information flow is key to the successful strategy execution of any strategy.	0	0	2	12	17

FESE6	KPIs and use of a balanced scorecard is key to successful strategy execution of any strategy.	0	4	8	13	6
FESE7	Having IT and Digital capabilities are key to successful execution of any strategy.	0	3	12	12	4
FESE8	Visionary leadership and effective management are key to the successful execution of any strategy.	0	1	1	5	24

DR#1: Section D

Section D: Useful Enterprise Engineering (EE) Principles/ Elements Required to Close the Strategy Execution Gap

	1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4= Agree 5 = Strongly Agree	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
UEEP1	Enterprise Engineering acknowledges that organisations are organised complexities (complex social-technical systems) as such appreciation of this and its use of Systems Thinking as reference framework makes this emerging discipline an enabler for successful Strategy Execution(SE).	0	0	8	18	5
UEEP2	Enterprise Engineering views organisations as a transparent 'white box' as opposed to a 'black box' which gives visibility to the enterprise design elements. As such, this perspective makes Enterprise Engineering a suitable candidate to house the theory of Strategy Execution.	0	2	11	14	4

		UEEP3	Enterprise Engineering focuses on understanding the construction and operation elements of an enterprise at the transaction level (the deepest layer) hence	0	1	9	18	3
			1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4= Agree 5 = Strongly Agree	**1 (Strongly Disagree)**	**2**	**3**	**4**	**5 (Strongly Agree)**
			avoids prescribing solutions based on symptoms – consequently it can be argued that this enables successful Strategy Execution.					
		UEEP4	Enterprise Engineering enables visibility and clarity of an enterprise's construction elements and construction flaws (if any) and therefore provides a basis to judge how an enterprise will respond to a chosen strategy and the probability of successful Strategy Execution thereof.	0	3	9	18	1

	UEEP5	Understanding the ontological model (that is the construction and operation model) of an enterprise at the transaction / cooperation level considerably reduces complexity inherent in Strategy Execution and hence makes the implementation more manageable.	0	1	7	21	2
	UEEP6	Because Enterprise Engineering shows the inner construction architecture of an organization it follows by design it brings better control (a	0	2	7	18	4

		1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4= Agree 5 = Strongly Agree	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
		state of being in control) of Strategy Execution just like any technical system (for example the blueprint drawings of automotive transmission systems give one a sense of control when troubleshooting).					

UEEP7	Enterprise Engineering focuses on Cooperation (communication, information sharing and agreements) at the deepest layer which is the foundation of any business and is critical for transactions. Since EE is centered on this essence level it houses the foundational elements which should be inspected for Strategy Execution readiness.	0	0	6	18		7
UEEP8	Several management disciplines that have attempted to build theories on Strategy Execution challenges focused on various elements with little attention given to the 'enterprise' as the housing systems through which a strategy is launched. As such ... among many disciplines	1	0	10	18		2

	1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4= Agree 5 = Strongly Agree	**1 (Strongly Disagree)**	**2**	**3**	**4**	**5 (Strongly Agree)**
	Enterprise Engineering is a strong contender to house the theory of Strategy Execution as it focuses on the enterprise as the System of Interest.					

DR#1: Section E

Section E: The Influence of Deliberate Re-engineering Specific Components of an Enterprise on Successful Strategy Execution						
	1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4= Agree 5 = Strongly Agree	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
IDRE1	We have always observed organisations intentionally redesigning / reengineering their organisations as a key activity or process step prior to Strategy Execution.	0	8	8	12	3
IDRE2	Enterprise architecture is key in revealing the business process blueprints in an enterprise and by extension the readiness of the enterprise to launch the intended or the chosen strategy successfully.	1	1	11	14	4

	1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4= Agree 5 = Strongly Agree	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
IDRE3	The description of the implementation process on its own without reflecting on the architecture of the enterprise is too simplistic and does not reduce the complexity of Strategy Execution, as such it is important to link that layer with the layer where commitments are made.	0	1	4	19	7

		IDRE4	By revealing and aligning processes that lead to formalisation of transactions - the processes leading to and the execution of those agreements (e.g., partnership, sales, services agreements etc.), practitioners can successfully influence Strategy Execution.	0	1	11	14	5
		IDRE5	Flaws or issues (the elementary construction errors) in the construction of the cooperation at the transaction layer (the agreements layer) - for example errors in contracts directly impacts Strategy Execution.	0	2	10	17	2

		1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4= Agree 5 = Strongly Agree	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
	IDRE6	By tracking and timely reviewing all key agreements in an organisation including their relationships prior to launching a strategy, enterprise engineers can, to an extent, influence Strategy Execution,	0	1	11	17	2
	IDRE7	Reviewing the enterprise 'construction and operation' models is essential for Successful Strategy Execution irrespective of the intervention you want to administer or the type of strategy to implemented.	0	4	9	12	6
	IDRE8	To prepare an organisation or to check readiness for Successful Strategy Execution – the first steps is to expose the 'AS IS' and move the 'TO BE' transaction level construction models and then map out ways to compensate for the areas that the enterprise does not have the required capabilities.	0	1	5	17	8

Appendix D: Delphi Round One (2) Sample Results per Section

Appendix D1: **Delphi R1 –** Sample Populated Questionnaire showing the Demographic Info

APPENDIX 1: Delphi Round One (1)

Research Instrument: Questionnaire Demographic Information Only

For Official Use

Questionnaire #	Reference:	Date	

Study Purpose: The purpose of this study is to understand how the success rate of strategy execution can be improved through the application of enterprise engineering principles and practices.

Section A: Demographic Information

This section intends to gather demographic information which will assist to contextualize and validate this study.

A1: Industry and Current Role/ Engagement(s) of the Panelist

Please mark with a cross (x) in the appropriate boxes in the table below for the role that best describes your specialty. Mark a maximum of two per attribute asked.

Current role	Academia	Consulting	Industry (private)	Industry (NGO)	Industry (Government)
Board Member			X		
Executive Leader					
Senior Manager					
Practitioner					

A2: Areas of Interest of the Panelist

Please mark with a cross (x) or a tick (√) in the appropriate boxes in the table below to indicate your areas of interest specialty. Mark at least one (1) and a maximum of three (3).

Area of interest	
Strategic Management	X
Strategy Formulation	
Strategy Execution	X
Organisational Design	
Change Management	
Project /Programme Management	
Enterprise Architecture	X
Enterprise Ontology	
Enterprise Engineering	

A3: Years of Experience

Please mark with a cross (x) in the appropriate boxes in the table below for the years of experience you have in *Leadership role* and *specific to Strategy Execution*. Mark one box only per attribute asked.

Years of Experience	5 – 10 years	11 – 15 years	16 – 20 years	21 - 25 years	26 - 30 years	31+ Years
Leadership /Senior Management						X
Strategy Execution			X			

A4: Academic Qualification

Please mark with a cross (x) in the appropriate box to indicate the highest qualification you have. Mark one box only.

Qualification	Mark (x)
▪ *Doctorate*	X
▪ *Masters Degree*	
▪ *Hons. Degree*	
▪ *Bachelors Degree*	
▪ *Other (if other – provide details below)*	

A5: Study Focus Areas of Strength for the Panelist

Please mark with a cross (x) or a tick (√) on your corresponding answer in the appropriate box. Mark one box only per attribute asked for.

Indicate your strength in any of these areas	1 (**Weak**)	2	3	4	5 (**Very Strong**)
Strategy Formulation					X
Strategy Execution					X
Organisational Design			X		
Strategic Management			X		
Change Management				X	
Project /Programme Management			X		

Appendix D2: **Delphi R1 –** Sample Populated Questionnaire showing Section B to E

Note that of the 31 questionnaires in round 1, 29 were submitted electronically with two mailed as PDF as per the same below. The researcher then manually captured the information on the portal created for this study as summarised in Appendix E3 – The Delphi R#1 Dashboard.

Section B: The Relationship Between Enterprise Design and Strategy Execution

This section explores *the extent to which the success of strategy execution is depended upon the design of the enterprise. Wherein the design refers to all the facets of an enterprise (e.g., processes, structures, governance etc.) and their relationships.* **Please indicate the extent to which you agree or disagree with each statement by marking (X) or ticking (√) on your corresponding answer.**

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4= Agree **5 = Strongly agree**		1	2	3	4	5
EDSE1	Not all enterprises are designed to facilitate successful strategy execution.				✓	
EDSE2	The way enterprises are designed have a bearing on the probability of successful strategy execution.					✓
EDSE3	A 'good strategy' will be successfully executed irrespective of how the enterprise is designed.		✓			
EDSE4	A well-designed enterprise could facilitate the successful execution of a 'bad strategy'.		✓			
EDSE5	Successfully strategy execution requires focus on both the enterprise's technical systems and social systems.				✓	
EDSE6	The complexity of designing the social systems of the enterprise limits the degree to which the success of strategy execution can be improved.				✓	
EDSE7	The design of the communication systems within an enterprise influences the success or failure of strategy execution.					✓
EDSE8	The architecture of an enterprise (the wiring diagram) gives insight into whether a given strategy can be successfully executed.					✓

Section D: Useful Enterprise Engineering (EE) Principles/ Elements Required to Close the Strategy Execution Gap

This section explores *the principles and practices of Enterprise Engineering that enable Successful Strategy Execution and assess the responsiveness of an enterprise to a chosen strategy.* **Please indicate the extent to which you agree or disagree with each statement by marking (X) or ticking (√) on your corresponding answer.**

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4= Agree **5 = Strongly agree**		1	2	3	4	5
UEEP1	Enterprise Engineering acknowledges that organisations are organised complexities (complex social-technical systems) as such appreciation of this and its use of Systems Thinking as reference framework makes this emerging discipline an enabler for successful Strategy Execution (SE).				✓	
UEEP2	Enterprise Engineering views organisations as a transparent 'white box' as opposed to a 'black box' which gives visibility to the enterprise design elements. As such, this perspective makes Enterprise Engineering a suitable candidate to house the theory of Strategy Execution.				✓	
UEEP3	Enterprise Engineering focuses on understanding the *construction* and *operation* elements of an enterprise at the transaction level (the deepest layer) hence avoids prescribing solutions based on symptoms – consequently it can be argued that this enables successful Strategy Execution.			✓		
UEEP4	Enterprise Engineering enables visibility and clarity of an enterprises' construction elements and construction flaws (if any) and therefore provides a basis to judge how an enterprise will respond to a chosen strategy and the probability of successful Strategy Execution thereof.				✓	
UEEP5	Understanding the ontological model (that is the construction and operation model) of an enterprise at the transaction / cooperation level considerably reduces complexity inherent in Strategy Execution and hence makes the implementation more manageable.				✓	
UEEP6	Because Enterprise Engineering shows the inner construction architecture of an organization it follows by design it brings better control (a state of being in control) of Strategy Execution just like any technical system (for example the blueprint drawings of automotive transmission systems give one a sense of control when troubleshooting).				✓	
UEEP7	Enterprise Engineering focuses on Cooperation (communication, information sharing and agreements) at the deepest layer which is the foundation of any business and is critical for transactions. Since EE is centered on this essence level it houses the foundational elements which should be inspected for Strategy Execution readiness.					✓
UEEP8	Several management disciplines that have attempted to build theories on Strategy Execution challenges focused on various elements with little attention given to the 'enterprise' as the housing systems through which a strategy is launched. Such among many disciplines Enterprise					✓

Section C: Reflecting on Elements that Determine the Success of Strategy Execution

This section explores *the fundamentals elements that determine the success of strategy execution in any enterprise*. **Please indicate the extent to which you agree or disagree with each statement by marking (X) or ticking (√) on your corresponding answer.**

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4= Agree **5 = Strongly agree**		1	2	3	4	5
FESE1	Enterprise Architecture is key to exposing the fundamental elements that drive the success of Strategy Execution.				✓	
FESE2	Having the right culture is fundamental to the successful execution of any strategy.					✓
FESE3	Organisational structure (the organogram) is key to the successful execution of any strategy.				✓	
FESE4	Project and change management are key to the successful execution of any strategy.				✓	
FESE5	Communication and information flow is key to the successful strategy execution of any strategy.					✓
FESE6	KPIs and use of a balanced scorecard is key to successful strategy execution of any strategy.				✓	
FESE7	Having IT and Digital capabilities are key to successful execution of any strategy.			✓		
FESE8	Visionary leadership and effective management are key to the successful execution of any strategy.					✓

Section E: The Influence of Deliberate Re-engineering Specific Components of an Enterprise on Successful Strategy Execution

This section explores *the significance of re-engineering specific components of the enterprise on successful strategy execution and how that can be useful to influence the success of the intended strategy.* **Please indicate the extent to which you agree or disagree with each statement by marking (X) or ticking (√) on your corresponding answer.**

1 = Strongly disagree, 2 = Disagree, 3 = Slightly agree, 4= Agree **5 = Strongly agree**		1	2	3	4	5
IDRE1	We have always observed organisations intentionally redesigning / reengineering their organisations as a key activity or process step prior to Strategy Execution.			✓		
IDRE2	Enterprise architecture is key in revealing the business process blueprints in an enterprise and by extension the readiness of the enterprise to launch the intended or the chosen strategy successfully.					✓
IDRE3	The description of the implementation process on its own without reflecting on the architecture of the enterprise is too simplistic and does not reduce the complexity of Strategy Execution, as such it is important to link that layer with the layer where commitments are made.				✓	
IDRE4	By revealing and aligning processes that lead to formalisation of transactions - the processes leading to and the execution of those agreements (e.g., partnership, sales, services agreements etc.) practitioners can successfully influence Strategy Execution.					✓
IDRE5	Flaws or issues (the elementary construction errors) in the construction of the cooperation at the transaction layer (the agreements layer) - for example errors is *contracts* directly impacts Strategy Execution.				✓	
IDRE6	By tracking and timely reviewing all key agreements in an organisation including their relationships prior to launching a strategy, enterprise engineers can, to an extent, influence Strategy Execution,				✓	
IDRE7	Reviewing the enterprise 'construction and operation' models is essential for Successful Strategy Execution irrespective of the intervention you want to administer or the type of strategy to implemented.				✓	
IDRE8	To prepare an organisation or to check readiness for Successful Strategy Execution – the first steps is to expose the 'AS IS' and move the 'TO BE' transaction level construction models and then map out ways to compensate for the areas that the enterprise does not have the required capabilities.					✓

Appendix D3: Delphi R1 - Summary of the Results

		# of Experts		
Section A	**Demographics and Profile of Experts**	**31**		This section is not meant for sharing as per the confidentially undertaking save to say that the experts included: Board members; C-level leadership, Academics, Practioners/ Consultants and Senior Managers in the Strategic Management and specifically the Strategy Execution space with average experience of 24 years and a combined experience of 745 years.
				Areas that the Panelists Agreed: +71% consensus
		# of Attributes	# in Agreement	
Section B	**Perceptions on the Current SE Framework**	**8**	**6**	Not all enterprises are designed to facilitate successful strategy execution. The way enterprises are designed have a bearing on the probability of successful strategy execution. A 'good strategy' will NOT be successfully executed irrespective of how the enterprise is designed. Successful strategy execution requires focus on both the enterprise's technical systems and social systems. The design of the communication systems within an enterprise influences the success or failure of strategy execution. The architecture of an enterprise (the wiring diagram) gives insight into whether a given strategy can be successfully executed.
Section C	**Elements that Determine the Success of SE**	**8**	**5**	Enterprise Architecture is key to exposing the fundamental elements that drive the success of Strategy Execution. Having the right culture is fundamental to the successful execution of any strategy. Project and change management are key to the successful execution of any strategy. Communication and information flow is key to the successful strategy execution of any strategy. Visionary leadership and effective management are key to the successful execution of any strategy.
Section D	**Useful EE Principles / Elements to Close the Strategy Execution Gap**	**8**	**4**	Enterprise Engineering (EE) acknowledges that organisations are organised complexities (complex social-technical systems) as such appreciation of this and its use of Systems Thinking as reference framework makes this emerging discipline an enabler for successful Strategy Execution (SE). Understanding the ontological model (that is the construction and operation model) of an enterprise at the transaction / cooperation level considerably reduces complexity inherent in Strategy Execution and hence makes the implementation more manageable. Because EE shows the inner construction architecture of an organization it follows by design it brings better control (a state of being in control) of SE just like any technical system (for example the blueprint drawings of automotive transmission systems give one a sense of control when troubleshooting). EE focuses on Cooperation (communication, information sharing and agreements) at the deepest layer which is the foundation of any business and is critical for transactions. Since EE is centered on this essence level it houses the foundational elements which should be inspected for Strategy Execution readiness.
Section E	**The Influence of Deliberate Re-engineering Specific Components of and Enterprise on SE**	**8**	**2**	The description of the implementation process on its own without reflecting on the architecture of the enterprise is too simplistic and does not reduce the complexity of Strategy Execution, as such it is important to link that layer with the layer where commitments are made. To prepare an organisation or to check readiness for Successful Strategy Execution – the first steps is to expose the 'AS IS' and move the 'TO BE' transaction level construction models and then map out ways to compensate for the areas that the enterprise does not have the required capabilities.
		Inputs Given	Consolidated	**Dominant Themes that emerged that were not adequatley addressed in Delphi Round 1 or in any parts of this Study**
Section F	**Organisational Capabilities needed to Successfully Execute strategy**	**48**	**16**	Clarity of Vision, Goals and the Ability to Visualise & Solve the Future State Ability to develop a Clear & Compeling Strategy ('A Good Strategy) Clear Understanding of Existing Capabilities on the Current Architecture & the Capability to Understand what is Required for the desired Future State Capability to Check the Strategy for Impementation Readiness (forensically analyse the formulated strategy) Capability to move from Feasibility Studies Stage (Business Case Generation etc.) through Development to Execution Capability to Understand which capabilities are required for the future state, which existing capabilities should be retired and which existing ones should be kept Clarity of Organisational Structure Linking People to Key Strategic Themes & Adequately Staffed The Right Performance Incentives and Consequences for Inadequate Delivery Risk Management & the Capacity to Manage Corruption The Capacity to Manage Change and the Agility of the Business Model Data Mastery as a pivot for Digital Transformation Digital Capabilities & Digital Congruence | alignment of culture, people, structure and tasks within the Digital Environment The Capability to Learn as organisation - the ability to deconstruct the steps undertaken and learn from the past (what worked and what did not) Ability to on-board key Stakeholders and charisma to Influence everyone to contribute towards the Desired Strategic Trajectory Effective allocation of resources (human, financial, technological, infrastructure, etc.) Capability to manage People and Build systems to aid Trust within the Organisation

		Inputs Given	Consolidated	**Dominant Themes that emerged that were not adequatley addressed in Delphi Round 1 or in any parts of this Study**
Section G	**Main Limitations of Current Strategy Execution Frameworks**	**34**	**15**	Lack of Capacity to Execute Strategy (i.e. Inadequate Competency Levels; etc) Lack of Appreciation of the Complexity of Strateg Execution and the Impact of Change Intiatives on People Lack of appreciation of the Enterprise Architecture (the Blue-print of the organisation) as the basis to map the Desired Future State A Culture of Entitlement and Lack of Commitment Current SE Frameworks lack the Systems View of an Organisation (reflection & understanding of 'internal & external' actors, the interfaces, interests, impacts etc.) Current SE Frameworks do not adequately consider or have practical models built-in for continuity of Political, Legal & Fiscal conditions Current SE Frameworks lack the 'how to' and the execution layout of the supporting implementation systems (People, Processes & Infrastructure / Technology) working together The current frameworks have issues with Adaptability - they are slow to adapt to the fast changing environment with emergent complexities Slow or lack of appreciation and / or adoption of new inventions in the Digital Space - e.g., Artificial Intelligence Lack of Resources (Funding) dedicated to Strategy Execution Confusing Strategy Execution with Project Management - hence over reliance of Project Management methods Lack of Applicable and /or Limited Use of Performance Management Frameworks / Tools Limited involvement of those who understand the culture of the organisation at the lowest level (too much focus is on Financial Results & inputs from consultants - however important) Softer elements of Culture and Mindset not given due value or attention Lack of Coherent & Effective Leadership in the Execution Phase

		Inputs Given	Consolidated	**Dominant Themes that emerged that were not adequatley addressed in Delphi Round 1 or in any parts of this Study**
Section H	**Reflection on Why Strategy Execution is an On-going Challenge**	**47**	**15**	Lack of Capacity (i.e., Execution Competence including Evidence based Decision Making) Bad Strategy' and or Lack of Clarity of Strategic Intent & the path to be followed - trying to implement strategies that are not well thought through or that are not practical One dimensional view of Strategy Execution - for example: if 'we' cascade the strategy aggressively, things will happen Lack of Leadership at the Execution Stage - thinking that Leadership is not required at Execution Reluctancy to appreciate the importance of Project Management Principles and the Value of the Project Management Office (PMO) Lack of robust Performance Management Systems (unclear Metrics; KPIs and over - absence of realtime data to aid decision making (that is over reliance on Lagging Indicators) No commonly accepted framewrok to implement Strategy - Failure of build the architecture that connect Formulation with Implementation (Failure to Design for Execution) Poor communication (incoherent messages / messaging) Missing 'key' (require) Organisational Capabilities for the Specific Strategic Intent Lack of Agility in the Formulated Strategy and the Execution Process - Inability to Pivot Strategy when the market changes Wrong timing of the Implementation (either too early or too late) Insufficient or Misallocation of Resources (for example Budgets not linked to Strategy) Lack of Focus on People; Lack of Trust and hence Buyin at all Levels Underestimating the Impact of Organisational Culture on Execution (Lack of a Performance Culture or a Culture of 'getting things done') Poor of Inadequate Stakeholder Engagement (Internally and Externally) Lack of Execution Centric Systems & Structures - Incentive Schemes, Enabling Structure, Alignment of Systems & Processes for Execution

		Inputs Given	Consolidated	Dominant Themes that emerged - rephrased in Enterprise Engineering Terminology
Section I	**Based on what you know and understand now, what aspects of enterprise engineering do you consider positively contribute to increasing the success of strategy execution?**	**28**	**10**	Systems Thinking - viewing enterprises as a Dynamic Socio-tech system of systems that adapts to the context
				Focus on understanding the Gap Between the 'As Is' and the 'To Be' as the nucleus of the Organisation (the transcation level)
				End to-end Achitecture at the Ontological layer (the cooperation level) across all functions to check 'Readiness for Execution'
				Holistic understaning of the th key Building Blocks and their Intersections at the Deepest Layer of the Organisation is Key to Execution
				The holistic aspect of EE that combines Engineering, Ontological Analysis and Human Sciences (Systems Thinking) to drive Sustainable Execution
				Analysing Enterprises at Elementary Level before prescribing a Solution or Launching a Strategy (How robust is this enteprise as the Housing through which the Strategy is launched?)
				End to-end Achitecture at Ontological layer (the cooperation level) across all functions to check 'Readiness for Execution'
				Having a Blue-print at the Essence Level of the Organisation as a starting point to check Strategy Execution readiness or Strategy Compatibility
				Linking People (Actors and 'Actor Roles') to Strategy through Enterprise Design at the Cooperation (Transcation) Level
				Promoting the notion that organisations are artefacts that are consciously or unconsciously designed by People and a a consequence the design has a bearing on Performance

		Inputs Given	Consolidated	Dominant Themes that emerged
Section J	**In your view what othr aspects of Strategy Execution should be considered in this Research or Future Studies**	**22**	**12**	Professionalism rather than patronage or populism (Evidence based decision making rather than ideology)
				The impact of corruption on Strategy Execution
				Deepen Understanding of what make a 'Good Strategy' versus a 'Bad Strategy' (the premise being that a Good Strategy has better chances of success)
				Change Management / Transition Management
				How to integrate digital Transformation and related Technology into Strategy Execution
				MERIL-DE model - the acronym describing the performance management cycle of measure, evaluate, report, improve, and learn – all through drive and engagement
				Tools or Research Efforts to dynamically measure Strategy
				Cyber Security Consideations in Strategy Execution
				The roles of 'Permissions' - approval to work (Right of Way) and their impact on Schedules and hence Strategy Execution
				Review the Strategy Execution fcators that cut across: political, ESG requirements, etc
				Explore the value of Change Management in the Three (3) Enterprise Engineering Layers (the Datalogical, the Infological and the Ontological layer)
				How leadership traits, behaviours and competencies can contribute to Startegy Execution

Appendix E: Delphi R#1 _ Raw Data Analytics Dashboard

Note that,

a. Thirty-one (25) Experts participated in this round.
b. Delphi Round 1 was based on a 7 point – Lickert scale with one (1) indicating strongly disagree and five (7) strongly agree.
c. The 7-point scale was used because it captures more data and allowed participants to refine their responses by clarifying the extent to which they agree or disagree with specific attributes. It also delivers more data to run statistical analysis as its more variants.
d. The results of this rough are outlined below as extracted from the bespoke Delphi study portal.

Analytics Dashboard - 25 Experts Answer

Section A1: Clarity on Constructs that did not Achieve Consensus in Delphi Round 1/p>

This section explores experiences of Organsational Elementary Construction Flaws (ECFs) in practice. On a scale of 1 to 7 with (1) being 'Not true and (7) being 'Very True, how 'true' are the following assertions / claims with respect to Successful Strategy Execution?

	1 = Not true 4 = Neutral 7 = Very True	1	2	3	4	5	6	7
CCAC1	A 'Bad Strategy' cannot be successfully implemented even though the enterprise is well-designed.	4	3	4	2	2	6	4
CCAC2	Reviewing the organsational structure is to an extent important in aiding Successful Execution of a strategic intent.	0	0	0	1	3	12	9
CCAC3	Flaws or errors in the construction of the cooperation at the transaction layer (the agreements layer) in an organisation directly impacts Strategy Execution. - for example, errors in contracts.	0	1	0	1	4	11	8
CCAC4	By tracking and timely reviewing all key agreements in an organisation including their relationships prior to launching a strategic initiative, practitioners can, to an extent, influence Strategy Execution.	0	1	2	0	4	14	4
CCAC5	Reviewing the enterprise 'construction and operation' models is essential for Successful Strategy Execution irrespective of the intervention you want to administer or the type of strategy to implemented.	0	1	1	1	4	10	8
CCAC6	Investing time and effort in putting contracts in place and fixing contractual flaws will reduce time spent fixing issues that could arise should the referred contracts had flaws or were not in executable versions.	1	0	2	1	7	6	8
CCAC7	Enterprise Engineering enables visibility and clarity of enterprises' construction elements and construction flaws (if any) and therefore will to an extend provide a basis to judge how an enterprise will respond to a chosen strategy and the probability of successful Strategy Execution thereof.	0	1	1	2	8	8	5
CCAC8	Several management disciplines that have attempted to build theories on Strategy Execution challenges focused on various elements with little attention given to the 'enterprise' as the housing systems through which a strategy is launched. As such, among many disciplines Enterprise Engineering is a strong contender to house the theory of Strategy Execution as it focuses on the enterprise as the System of Interest.	0	2	1	4	2	7	9

< 1 >

Section A2: Delphi R1 – Experts' Synthesized Emerging Themes to aid Strategy Execution

This section explores dominant themes from Round 1 that the experts highlighted as necessary to aid Successful Strategy Execution in practice. On a scale of 1 to 7 with (1) being 'Not at all Important' and (7) being 'Very Important', how important are the following attributes / assertions in aiding Successful Strategy Execution?

	1 = 'Not at all Important' 4 = Neutral 7 = 'Very Important'	1	2	3	4	5	6	7
ESET1	How important is the capability to Visualize and Solve the Future State of the organisation (i.e., Clarity of Vision, Clarity of Goals and Clarity of the Trajectory to the Desired State).	0	0	0	0	2	3	20
ESET2	How important is the Ability (Competence) to develop a clear & compelling Strategy 'A Good Strategy' (i.e., convincing set of strategic choices of 'Win' of to remain sustainable).	0	0	0	0	1	7	17
ESET3	How important is the capability to check the Strategy for Implementation Readiness (i.e., the capacity to forensically analyse the formulated strategy).	0	1	0	0	5	7	12
ESET4	How important is clear understanding of Existing Capabilities on the Current Architecture & the Capability to understand what is required for the desired Future State & what capabilities should be retired.	0	0	0	0	0	9	16
ESET5	How important is the capability to move from Feasibility Studies Stage (Conceptual Studies, Business Case Generation etc.) through Development to Execution.	0	0	0	2	4	10	9
ESET6	How important is Data Mastery, Digital Capabilities & Digital Congruence (i.e., alignment of culture, people, structure, and tasks within the Digital Environment).	0	0	0	2	9	7	7
ESET7	How important is the capability to Learn as organisation – that is the ability to deconstruct the steps undertaken and learn from the past (what worked and what did not).	0	0	0	1	2	12	10
ESET8	How important is Ability to on-board key Stakeholders with the requisite character & charisma to influence everyone or at least the majority to contribute towards the Desired Strategic Trajectory.	0	0	0	1	3	10	11

< 1 >

Section B: Fundamental Conditions of Success of any Strategy Execution Effort

This section explores the importance of specific Basic Conditions of Success of any Strategy Execution effort. On a scale of 1 to 7 with (1) being Strongly Disagree and (7) Strongly Agree, please rate the extent to which you agree or disagree with each statement.

	1 = Strongly Disagree, 2 = Disagree, 4 = Neutral, 6 = Agree 7 = Strongly Agree	1	2	3	4	5	6	7
FCSE1	'Clarity of the details of Transactions' (at least the `vital` ones) that an organisation has entered or is in discussions is fundamental in checking how that entity will Successfully Execute Strategy.	0	1	1	4	10	6	3
FCSE2	`Clarity of Decision Rights` for individuals or groups tasked with driving Strategy Execution (i.e., Who decides over which decisions, what decisions must be made, and how the decision-making process should work) is key for successful Strategy Execution.	0	0	1	1	9	5	9
FCSE3	When the strategy changes, it is necessary to review the operating model and design principles to guide the transition to the new or desired strategic intent.	0	0	1	2	1	8	13
FCSE4	Reviewing the current 'Organisational Capabilities' and acquiring the right capabilities in line with the strategic intent is a critical condition for successful Strategy Execution.	0	0	0	0	1	10	14
FCSE5	When changing or launching a new strategy, it is highly likely that new and/ or different capabilities will be required, and the influence of legacy capabilities may need to be reduced or retired.	1	1	2	0	4	7	10
FCSE6	Experiencing the future (this could be through prototyping; simulations, conducting a proof of concept or a pilot project) when introducing a new intervention or strategic initiative is critical in aiding Strategy Execution.	1	1	1	1	6	9	6
FCSE7	Listening to what employees are saying and the way they speak can give an indication on whether the trajectory of strategic intent is changing or moving in the desired path.	0	1	0	1	3	11	9
FCSE8	Leadership alignment on either the strategic intent or the related trajectory by which the strategy will be realized is a critical condition for successful Strategy Execution.	0	0	0	0	1	7	17

< 1 >

Section C: Clarity of Organisational Construction at the deepest level (the Ontological layer)

This section explores the importance of Clarity in an Organisations' Construction at the deepest layer (the Ontological level). Please rate the extent to which you agree or disagree with each statement by marking (X) or ticking (√) on your corresponding answer.

	1 = Strongly Disagree, 2 = Disagree, 4 = Neutral, 6 = Agree 7 = Strongly Agree	1	2	3	4	5	6	7
COCO1	Signed agreements (for example execution version SLAs or Contracts) and the architecture of the cooperation detailed in these agreements is a vital foundation for successful Strategy Execution.	0	0	3	5	9	3	5
COCO2	'Transactions' (that is the way commitments / agreements) are brought about and the complexity of the transactions (scale, number, the interfaces, actors & stakeholders involved) has a direct bearing on the complexity of the Strategy Execution effort.	0	1	1	4	8	7	4
COCO3	Incorporating Strategy Execution compatibility elements upfront in all transactions an organisation is working on will assist in designing out possible down-stream implementation stage complexities that may impact successful Strategy Execution.	0	0	2	1	5	13	4
COCO4	To understand the readiness to execute strategy, there is need to review processes to understand what information is being shared and its criticality for managing the cooperation between parties (within & external to the organisation).	0	1	2	1	5	10	6
COCO5	The transactions initiators and executors (the main actors in any strategic transaction) must have Capacity or be Competent; their Responsibilities clearly outlined and must have the Authority or Mandate to execute or negotiate on behalf of the transacting party.	0	0	1	1	4	10	9
COCO6	Deliberate review of the composition of Strategic Initiatives Implementation Boards - e.g., a Project Steering Committee or a Change Control Board is key to ensure that the `right` individuals with vested interests in accelerating implementation are on board.	0	0	0	4	5	7	9
COCO7	Integrating an organisations' information systems; ensuring the data in the information systems is of good quality and that the data which is key for decision making is accessible in real-time is fundamental in aiding Successful Strategy Execution.	0	0	1	1	1	9	13
COCO8	To understand the quality and integrity of `cooperation` as an anchoring pillar in Strategy Execution, there is need for leaders to know and understand how people communicate, the 'what' in the information is being shared, the timing of sharing and the level at which the info is being shared.	0	1	1	1	3	10	9

Section D: Organizational Alignment of various Systems required for Strategy Execution

This section explores the importance of Aligning various Organisational Systems required for successful Strategy Execution. On a scale of 1 to 7 with (1) being 'Not at all Important' and (7) being 'Very Important', how important are the following attributes / assertions in aiding Successful Strategy Execution?

	1 = 'Not at all Important' 4 = Neutral 7 = 'Very Important'	1	2	3	4	5	6	7
OARE1	How important is creating 'clarity of the mission (the strategic intent and the strategic trajectory)' and the resultant responsibilities as a foundation for change management?	0	0	0	0	0	7	18
OARE2	How important is 'timely access' to clear and unambiguous information as a requirement for institutionalisation of a strategic initiatives?	0	0	1	1	5	8	10
OARE3	How important are 'agreements' as an enabler of effective communication process in projects with several parties e.g., Building a Soccer World-cup Stadium or Building a Tax Returns e-filling system for the Tax Authority?	0	1	1	3	6	6	8
OARE4	How important is 'Task or Role Ownership' as a first step to creating an organisational culture of accountability which is a necessary condition for Successful Strategy Execution?	0	0	1	0	3	9	12
OARE5	How important is resourcing (allocating adequate budget to) the Architecture / Design / Planning departments in order to design out downstream challenges and to ensure they realise their responsibility to reduce complexity in systems designs?	0	0	1	2	3	7	12
OARE6	How important are functions or departments which manage and enforces rules & procedures that are applied to the organisation as an aid in Executing Strategy - for example a Project Management Office (PMO) or an IT Governance Office (the Enterprise Architecture function)?	1	2	3	0	4	9	6
OARE7	How important is clarity in actors' roles (that is clarity of responsibilities and accountabilities of the `right` people) in aiding a `good` corporate culture and reducing work politics?	0	0	0	0	2	7	16
OARE8	How important is understanding and objectively testing technical complexity of applications (Apps) during the Development phase (i.e., checking the number of parts, the number of interfaces and how they relate before finalising development)?	0	0	2	3	6	7	7

Section E: Experiences of some Organisational Elementary Construction Flaws (ECFs)

This section explores experiences of some Organsational Elementary Construction Flaws (ECFs) in practice. On a scale of 1 to 7 with (1) being 'Not at all' and (7) being 'Most of the time', to what extent have you witnessed the scenarios outlined below?

	1 = Not at all, 2 = Rarely, 4 = Neutral, 6= Sometimes 7 = Most of the time	1	2	3	4	5	6	7
OECF1	I have always observed organisations intentionally redesigning / reengineering their organisations as a key activity or process step prior to launching a Strategic Initiative (Implementing Strategy)	2	4	5	1	5	5	3
OECF2	In my current or previous work, I have witnessed a scenario where two parties to a transaction sign an agreement with supposedly clear deliverables but upon delivery, the client side (the requester) is totally unhappy or feels he was not heard.	0	0	0	3	8	9	5
OECF3	In my experience I have witnessed a scenario wherein the responsibilities of specific actions / tasks are not clear, by way of an example – whether the task to be done is for the Facilities Department or HR or for ICT Helpdesk.	0	0	1	1	5	10	8
OECF4	In my current or previous work, I have witnessed job review exercises exposing a significant mismatch between the Job Description shared by HR and what the employees actually do.	0	1	1	0	3	7	13
OECF5	In my experience I have seen organisations investing in initiatives to reduce complexities in IT systems for example having dedicated resources focusing on complexity reduction in the IT Architecture department of the organisation.	2	3	1	2	6	6	5
OECF6	In my experience I have seen two individuals or departments working on the same strategic initiatives without each other knowing, therefore unknowingly performing `double work.	0	0	2	0	3	11	9
OECF7	In my experience I have seen different executives working on the same strategic initiative unknowingly, hence costing the organisation precious executive time and resources.	1	2	0	1	3	12	6
OECF8	In my experience I have seen organisations introducing `in fashion` methodologies like Agile/ Scrum or the Lean Approach or X or Y without first objectively checking the suitability of that tool or approach for the context in question. (This in some cases leading to the organisation formally or informally abandoning the initiative/s within a few months of implementation).	1	1	1	1	4	7	10

Section F: Delphi R1 – Other Expert Synthesized Emerging Themes in Strategy Execution

This final section explores dominant themes that emerged from Delphi Round 1 that the experts declared as limiting the current efforts to Execute Strategy Successfully in practice. On a scale of 1 to 7 with (1) being 'Not at all Important' and (7) being 'Very Important', how important are the following attributes / assertions in aiding Successful Strategy Execution?

	1 = 'Not at all Important' 4 = Neutral 7 = 'Very Important'	1	2	3	4	5	6	7
OSET1	Risk Management including addressing Corruption.	0	0	0	0	0	9	16
OSET2	Adaptive Business models that future proof the business.	0	1	1	0	4	12	7
OSET3	Putting in place the right performance incentives to aid execution.	0	0	2	0	5	10	8
OSET4	Consideration of Cyber Security as a key element in the Implementation Plans.	0	0	1	4	3	8	9
OSET5	Professionalism rather than patronage or populism (Evidence based decision-making rather than ideology).	0	2	0	2	1	4	16
OSET6	Appreciation and / or adoption of new inventions in the Digital Space - e.g., Artificial Intelligence to aid Strategy Execution.	0	2	1	3	2	11	6
OSET7	Effective allocation of resources (human, financial, technological, infrastructure, etc.) – dedicated adequate resources to Execution.	0	0	0	0	1	7	17
OSET8	Addressing the culture of entitlement and enforcing consequences for lack of delivery (lack of commitment).	0	0	0	1	2	7	15
OSET9	Capability to manage People and Build systems to aid Trust within the organisation involving those at the 'coal face' or the shop floor.	0	0	0	1	2	9	13
OSET10	The 'Strategy Execution Framework' should be designed from a Systems View (i.e., reflects & understands the `internal & external` actors, the interfaces, interests, impacts etc.) and should have practical models built-in for continuity of Political, Legal & Fiscal conditions.	0	1	1	2	5	6	10

Appendix F: Confirmation of Expert Over-sight on Data Analysis

175 Willow Creek
Westgate Goodhope
Harare, Zimbabwe

21 September 2024

To Whom It May Concern,

Ref: Data Analysis Confirmation Letter for a PhD Candidate

I am writing to confirm that we conducted data cleaning and analysis for a research project titled *Development of an Enterprise Engineering Strategy Execution Framework* for Mr T. Mudavanhu a PhD Student at University of Witwatersrand in Johannesburg, South Africa. As the lead statistician, I was responsible for ensuring the accuracy, integrity, and reliability of the dataset.

The data cleaning process involved identifying and correcting any inconsistencies, errors, or missing values in the dataset. This also included removing duplicates, handling missing data, standardizing formats. All necessary steps were taken to ensure the data was accurate and prepared for analysis.

Following data cleaning, I applied appropriate statistical techniques to analyse the dataset. The methods used for the analysis included descriptive statistics, regression analysis using SPSS to ensure that the results are statistically valid and robust.

I confirm that the data is now clean, accurate, and reliable for its intended purpose. The analysis results can be confidently used for further interpretation, reporting, and decision-making processes.

If you have any further questions or need additional information, please feel free to contact me.

Kind Regards,

Sharleen Sigauke



(+263 779512373)

Appendix G: Similarity Report from “Turnitin

