

**Designing guidelines for sustainable housing:
What we learn from the development of the green building
sector in South Africa.**

by

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Declaration

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Abstract

Housing is one of South Africa's major challenges, amplified by the unprecedented rate of demand and constrained capacity for delivery. Public and private practitioners in the housing sector tend to respond to this challenge by prioritizing meeting immediate needs rather than planning for long-term benefits. Building practices are becoming progressively unsustainable, warranting a shift away from conventional familiar methods of building towards practices that promote sustainability. In this context, initiatives aimed at greening the housing sector or redressing spatial injustice stemming from the Apartheid are often perceived as time consuming add-ons and are not given the necessary importance. Therefore how South Africa addresses housing issues today is a determinant factor in the country's ability to build resilient communities and promote sustainable living.

In this study, I examine the development of the green building sector in South Africa to understand how to promote change within the housing industry. In particular, I explore how the Green Building Council of South Africa (GBCSA), a non-profit organisation, developed and implemented various guidelines and certification tools to promote sustainability and enable change in conventional building practices. I then unpack how these guidelines and tools were received and adopted by the housing industry. To gain insights into the dynamics at play, I draw on literature that speaks to issue fields, soft regulations, and the influence of framing approaches in implementing change. The issue fields perspective is helpful to understand what guides the beliefs and practices of actors in a field and how they deal with an issue. Literature on soft regulations provide insights into the role of a voluntary governance framework in promoting new ideas and fostering change. Finally, the framing perspective provides an analytical lens to recognize methods used to develop and promote the GBCSA tools, and how in turn the housing industry received and participated in the process of change. Adopting a grounded theory methodology, I use semi-structured interviews, member check ins and content analysis to unpack how the GBCSA promoted change and induced industry response.

Research findings suggest that the GBCSA's soft regulatory approach relying on voluntary participation is effective in promoting new ideas, building stronger networks and developing collective accountability amongst the participants. However, the study shows that the effectiveness of soft regulations is influenced by how an initiative is framed and the extent to which it provides enough specification to enable an adequate understanding and response to the issue. Linked to this, the study emphasises the role of exogenous events – such as an unexpected emergency like the water or energy crisis – to crystallise the understanding of the issue and accelerate industry's involvement and commitment to change. Unpacking various methods of

implementation, recognizing causes for industry resistance to change, and understanding benefits and setbacks of soft regulations may assist housing industry practitioners and policymakers to improve execution of sustainable housing through design guidelines and enabling lasting changes in conventional building practices and housing delivery.

Opsomming

Behuising is een van Suid -Afrika se grootste uitdagings, versterk deur die ongekeerde aanvraag en die beperkte leweringsekapasiteit. Openbare en private sektore in die behuisingsektor is geneig om op hierdie uitdaging te reageer deur prioriteit te gee aan onmiddellike behoeftes eerder as om vir langtermynvoordele te beplan. Boupraktyke word geleidelik onvolhoubaar, wat 'n verskuiwing van die tradisionele bekende metodes van bou vereis na praktyke wat volhoubaarheid bevorder. In hierdie konteks word inisiatiewe wat daarop gemik is om die behuisingsektor te vergroot of om ruimtelike onreg uit die Apartheidsera te herstel, dikwels as tydrowende byvoegings beskou en word dit nie die nodige belangrikheid gegee nie. Daarom is hoe Suid -Afrika vandag behuisingsekwessies aanspreek, 'n bepalende faktor in die land se vermoë om veerkragtige gemeenskappe te bou en volhoubare lewens te bevorder.

In hierdie studie ondersoek ek die ontwikkeling van die groenbousektor in Suid -Afrika om te verstaan hoe om verandering binne die behuisingsektor te bevorder. In die besonder ondersoek ek hoe die Green Building Council of South Africa (GBCSA), 'n organisasie nie wingewend, verskeie riglyne en sertifiseringsinstrumente ontwikkel en geïmplementeer het om volhoubaarheid te bevorder en verandering in konvensionele boupraktyke moontlik te maak. Ek pak dan uit hoe hierdie riglyne en gereedskap dan deur die behuisingsektor ontvang en aangeneem is. Om insig te kry in die dinamika in die spel, maak ek gebruik van literatuur wat spreek oor kwessies, sagte regulasies en die invloed van raamwerkbenaderings by die implementering van verandering. Die perspektief op kwessievelde is nuttig om te verstaan wat die oortuigings en praktyke van akteurs in 'n veld lei en hoe hulle 'n probleem hanteer. Literatuur oor sagte regulasies bied insig in die rol van 'n vrywillige bestuursraamwerk om nuwe idees te bevorder en verandering te bevorder. Laastens bied die raamperspektief 'n analitiese lens om metodes te herken wat gebruik word om die GBCSA -instrumente te ontwikkel en te bevorder, en hoe die behuisingsektor op sy beurt die veranderingseproses ontvang en daaraan deelneem. Ek gebruik 'n gegronde teorie-metode, en gebruik semi-gestruktureerde onderhoude en inhoudsanalise om uit te pak hoe die GBCSA verandering bevorder en reaksie in die bedryf veroorsaak.

Navorsingsbevindinge dui daarop dat die GBCSA se sagte reguleringsebenadering wat op vrywillige deelname staatmaak, effektief is in die bevordering van nuwe idees, die bou van sterker netwerke en die ontwikkeling van gesamentlike aanspreeklikheid onder die deelnemers. Die studie toon egter aan dat die doeltreffendheid van sagte regulasies beïnvloed word deur hoe die inisiatief opgestel is en die mate waarin dit genoegsame spesifikasies verskaf om 'n voldoende begrip en reaksie op die kwessie moontlik te maak. Daarby beklemtoon die studie

die rol van eksogene gebeurtenisse - soos 'n onverwagte noodgeval soos die water- of energiekrisis - om die begrip van die kwessie te kristalliseer en die betrokkenheid en toewyding van die industrie by die probleemoplossing te versnel. As u verskillende implementeringsmetodes uitpak, die oorsake van die weerstand teen verandering in die bedryf erken en die voordele en terugslae van sagte regulasies begryp, kan praktisyns in die behuisingsbedryf en beleidmakers dit help om die uitvoering van volhoubare behuisings te verbeter deur ontwerpriglyne en om deurlopende veranderinge in boupraktyke en huisvesting moontlik te maak.

Dedication

For my five tiny angels, who never fail to put a smile on my face every day;

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List of Acronyms and Abbreviations

ANC	African National Congress
AP	Accredited Professional
BNG	Breaking New Ground
CoCT	City of Cape Town
GBC	Green Building Council
GBCSA	Green Building Council of South Africa
GHG	Greenhouse Gas
RDP	Reconstruction and Development Program
NPO	Non-Profit Organisation
SA	South Africa

Definition of Terms

Issue Fields: “a conceptual model that links different constituencies that operate within the same field with conflicting views in relation to an issue” (Hoffman, 2001:352).

Soft Regulation: “Non-hierarchical rules that are not legally binding” (Sahlin & Wedlin, 2008:237).

Spatial justice: “Struggle towards ensuring equity in social space through spatial planning, inclusivity and integration” (Dikeç, 2001:1788)

Chapter 1: Introduction

“...Sustainability is not just for environmental integrity. One should look into alternatives to traditional patterns of development that causes exhaustion of natural resources and growing inequality” (Smets & Van Lindert, 2016:3)

Within the field of urban development and planning, there is a rising recognition that we cannot continue providing for the growing population at this rate of urbanisation, without adopting sustainable methods of practice (Martine *et al.*, 2008). Housing in this case, has become one of the major challenges the nation faces today, as growing rates of housing demand, limited delivery options and high external pressures make efficient and sustainable housing delivery a challenge. Due to the historical context of South Africa, efficient and sustainable housing delivery can also address more systemic issues, such as spatial injustice and separated communities, that the Apartheid era brought upon the country (Ziblim, 2013). As Smets and Van Lindert (2016) explain, implementing sustainable change requires a shift in traditional methods of practice that do not meet demand and cause more harm in the long term (Smets & Van Lindert, 2016). Hence, how South Africa addresses housing issues today, through housing policies, guidelines and strategies, can be an important tool for the country to build resilient communities and promote sustainable living.

In this introductory chapter, I first establish the background of the research study by illustrating the state of the current housing industry in South Africa. Next, I present the focus of my research and give an overview of the green building sector. I then outline the problem statement and research questions of this study. I provide a high-level overview of the research, including its objectives, scope and research design; to then describe my rationale for the study. In the final section, I outline the remaining chapters of this thesis and the key components each chapter discusses.

1.1 The South African housing industry

The housing industry faces challenges beyond just high demand and limited delivery options. The industry faces historical scars such as spatial inequality and community segregation, environmental complications such as waste pollution to resource exhaustion and political challenges such as private and public sector indifferences for housing delivery (Martine *et al.*, 2008; Ziblim, 2013). It is evident that how the housing demand of the nation is met, is extremely sensitive to issues that are beyond just meeting the immediate housing backlog.

The City of Cape Town has recognized that state housing programmes implemented nationally, are not optimally addressing the lack of access to affordable and sustainable housing, especially for low-middle income households that make up the large workforce of the country (Media Office CoCT, 2019:2). In Cape Town specifically, because of the extreme spatial divide, due to the Apartheid era of planning that situated middle to low income communities in the periphery of the city, housing implementation and design becomes a key tool to address spatial justice. Along with the rapidly increasing property prices and housing demand, Cape Town's private and public housing sector both face huge pressures to provide houses close to the City and all its opportunities in a sustainable and inclusive way (Cohen, 2018).

How we build houses says a lot about our views and treatment of the context in which we live on. Housing by itself, is a multifaceted concept that goes beyond infrastructure and utilities, as it has a direct influence on various other elements that make up our environment (Smets & van Lindert, 2016). According to Naidoo (2015), about 60% of the country's total greenhouse gas (GHG) emissions come from cities, with 25% attributed to transportation, and 32% to the built environment- that includes housing (Naidoo, 2015). This statement makes it clear that effective design and planning for housing projects can reduce energy demand, improve material efficiency and address issues such as emissions due to transport and infrastructure waste. Sustainable design in the planning and building phase of a house can have a great impact and reduce energy demand and consumption of the house down by a factor of 5 (McLennan & Berkebile, 2003). The Habitat III Conference in October 2016, set a new global standard for sustainable housing – placing a strong emphasis on infrastructure and spatial planning as levers to help communities manage their resources and living spaces more effectively (SDSN-Thematic-Group, 2013). Housing, if implemented sustainably can have a significant impact on land usage, vehicle emissions, climate change, and our carbon footprint.

It is essential to understand the link between the environment and housing to recognize its effect on climate change and socio economic factors (Smets & van Lindert, 2016). Any form of guidelines, such as policies, strategies or plans, that influence the way we meet our housing demand, have the opportunity to strengthen this link and address sustainability through effective measures (Media Office, Human Settlements, City of Cape Town 2019). It is evident that sustainable planning and design of housing can be one of the numerous means to potentially facilitate and advance sustainable change within our country in environmental, social and political aspects.

1.2 Focus of the research

Initially, the research study was to focus on the development of a housing policy that promoted guidelines aimed at tackling issues of spatial injustice in housing. However, due to delays from

the pandemic circumstances, the policy was paused and I was unable to focus my research on a policy that was yet to be designed. Therefore, I resorted to studying and analysing an existing initiative that promoted sustainable housing guidelines and aimed at changing conventional methods of meeting housing demand.

This shift in research focus gave rise to a new question, namely “what is the role of voluntary guidelines to encourage sustainable methods of building homes.” I approached this question by examining the development of the green building sector in South Africa, and in particular the role of the Green Building Council of South Africa (GBCSA) guidelines and tools, a voluntary framework aimed at promoting environmentally sustainable practices in the South African housing sector.

1.3 The green building sector of South Africa

The green building sector of South Africa is a niche market within the built environment that focuses on developing green buildings in all sectors, including housing. Green buildings are defined to be sustainable infrastructure that focuses on various elements of sustainability; such as energy efficiency, transport, materials and even indoor conditions (McLennan & Berkebile, 2003). Across the globe the green building sector is a network that encourages sustainable building practices that are not only energy efficient, but also socially inclusive and economically viable in sustainable ways (World Green Building Council, 2016). Currently, green buildings have grown to such an extent that there are now premiums placed on renting out or buying a building that is recognised as a green building (Windapo, 2014).

The GBCSA, a non-profit organisation kickstarted the green building industry of South Africa nearly 10 years ago and brought in huge changes to the industry by incorporating sustainable guidelines in the industry’s familiar methods of practice (GBCSA, 2018). The GBCSA is based on a voluntary approach. It provides certification tools such as the Green Star rating tool, professional accreditations courses and hosts nationwide conferences to raise awareness and promote sustainability within the built environment of South Africa. The GBCSA being one of the first successful attempts at promoting change towards sustainability within the housing sector, can hold valuable lessons that may assist the development of future housing guidelines.

1.4 Problem statement

“What is the point of a house if there is no planet to put it on?”(Rahi, 2017:12)

With the unprecedented rate of urbanization, rapid rise in population and housing demand in South Africa, there is a need to understand what options are available for the housing industry to tackle the growing housing demand without causing harm to the environment (Ziblim, 2013). Housing issues remain as one of the most prominent repercussions of South Africa’s historical

policies due to spatial injustice and meeting the high demand of housing through unsustainable methods of delivery (Ziblim, 2013). Therefore the housing industry focuses on addressing such issues through speedy housing delivery methods. In this context, sustainability initiatives are often perceived as time consuming and expensive add-ons to familiar methods of housing delivery and are not given the required importance. Building practices become unsustainable and focus on meeting immediate demand over long term needs and requirements of the context.

Yet, as Rahi (2017) states, meeting housing demand without considering factors such as sustainability, inclusivity and resilience is futile. This makes the need to design and implement housing policies, strategies or guidelines that advocate for sustainable building practices a pressing need.

The GBCSA however, appears to have successfully established itself in the built environment of South Africa and fast-tracked the development of the green building sector by promoting voluntary design guidelines and certification tools. Understanding the methods used by the GBCSA to develop, promote and integrate its tools within the housing sector, can be hugely beneficial for the future housing strategies that aim to meet demand sustainably. Furthermore, unpacking the strength and limitations of the GBCSA's approach can help improve the design of other guidelines or other initiatives, such as those aimed at addressing spatial injustice.

1.5 Research questions

This research aims to understand the role of design guidelines to encourage sustainable methods of building homes. I approach this question by examining the development and establishment of the GBCSA guidelines and tools, a voluntary framework that played an important role in developing the green building sector in the South African. To unpack the nuances of this question, I set three research sub-questions that will help explore the research objective in depth and draw practical conclusions:

1. How were the GBCSA green building guidelines and tools developed and promoted in the housing industry?
2. How did the housing industry receive, interpret and implement the GBCSA sustainability building guidelines and tools?
3. To what extent was the GBCSA's approach successful in driving change within the housing sector?

These three sub-questions were used to guide the research approach, influence the methods of data collection and the composition of the target group of participants in this research study. The findings and conclusion drawn in Chapter 5 are organised according to these three questions.

1.6 Rationale for the Study

The sustainable housing landscape of South Africa is an unexplored and misunderstood context (Rahi, 2017; Ziblim, 2013). Policies and strategies have struggled to move the industry away from a focus on fast delivery at minimum costs. This research attempts to help address the challenge of designing effective guidelines for sustainability. It does so by looking into one of the very few sustainability initiatives in the housing sector that brought forward effective and lasting changes in the standard way of practice, namely the GBCSA guidelines.

Secondly, the GBCSA took a different approach to usual policies and strategies implemented in the housing sector, that prescribed mandatory regulations instead of endorsing change on a volunteer basis. Various research has been done to explore the effectiveness and impact green building tools have on sustainable housing. However very limited research is done to understand ‘the how’ in implementing such tools and initiatives, in a contested industry like housing. The GBCSA tools aim to encourage change by having all relevant stakeholders and industry practitioners involved in the very beginning stages of implementation, to work with them and induce change. Research into such methods of implementation, development and promotion of sustainable change in this manner will be hugely beneficial for both the private and public housing sector.

Lastly, as an architect and enthusiast of sustainable housing and the green sector myself, I have always been intrigued as to how strategies that involve design guidelines and planning can bring forth effective sustainable changes. This area of research stems from the work that is already being conducted in exploring the role of sustainable design and urban planning in building communities in our modernizing world. Therefore, I think it is vital to not only explore the complexities that come with implementing sustainable change in the housing sector, but also to reflect on how future policies, strategies or tools can include sustainable design guidelines, to build resilient communities in South Africa.

1.7 Scope and limitations of the study

The scope and scale of the study is restricted to examining the South African housing sector and the initiatives that aim to bring sustainable changes to regular industry practice. The scale of the research narrows down even further to only look into the establishment of the GBCSA and the green building guidelines and tools that they implemented. These boundaries on the

scale of the research were established due to limitations such as time and amount of data that could be collected realistically. Additionally, the scope of the research was limited to examine and explore mainly the GBCSA Green Star rating tools. There are various green building tools implemented and practiced across the globe, however I chose the GBCSA, its guidelines and tools in an attempt to keep the research local, relevant and practical to our context in order for the findings to be utilised meaningfully.

Lastly, various policies, strategies and tools that target sustainability within the housing sector were briefly consulted, however only those that were implemented after the Apartheid era or were effective within the last five years were focused on. While the Green Star rating tools introduced by the GBCSA have had many iterations and version of the same tool, only the most recent tool introduced within the last five years was explored. This window attempts to keep the analysis up to date, in order to suggest methods of improvement that are more relevant to the context of today.

1.8 Research methodology and design

This research follows a qualitative study and uses the grounded theory methodology to iteratively examine and challenge the findings and ideas that emerged from the data collected. I used a constructivist paradigm, which interprets realities as socially constructed and subjective to understand how housing practitioners within the industry understand and interpret the urgency and ways to address sustainability in housing (Guba & Lincoln, 1994; Rahi, 2017). This approach resulted in changes to the usual research approach I was familiar with, as I did not start the research process with a set hypothesis to test, or preconceived theories to test. Rather, I started the research process with an approach to iteratively collect data, unpack complexities and evaluate theories in tandem with what emerged from my data.

As a result of selecting the iterative methodology of grounded theory, I began my research with preliminary literature review to understand the dynamics and complexities of the green building sector in the housing industry and to identify the role of policies or guidelines in implementing sustainable housing. I then used semi-structured interviews and member check-ins to unpack the barriers and hindering elements to sustainable change by engaging with and analysing the experience and views of industry practitioners on the implementation and adoption of the GBCSA tools and guidelines. I also consulted secondary data such as reports, media and websites to gather further information on the establishment of the GBCSA. I used data triangulation to add rigour to my research approach. In unison with data collection, I also conducted data analysis using methods such as coding and data display to review the researched theoretical frameworks while analysing the collected data. After which I was able to understand patterns and frames that explained how the GBCSA promoted green building guidelines and

tools in the housing sector, how frames were interpreted and adopted by the industry practitioners, and how efficient such initiatives was in encouraging sustainable change within the housing sector.

1.9 Thesis outline

Following the introductory chapter, in Chapter 2, I establish the conceptual and theoretical framework of the study through the literature review. Firstly, I begin with a review on the green building sector and the role of policies or guidelines in implementing sustainable change in the housing industry. I also review background information regarding the establishment of the GBCSA within the housing industry. Secondly, I explore the concept of issue fields and the role of soft regulations. Thirdly, I explore the concept of framing to establish a theoretical lens to analyse how the GBCSA promoted and implemented its tools and how the industry in return, interpreted and adopted the tools.

In Chapter 3, I outline the research design of this study by explaining the research approach, paradigm, methodology and methods used to address the research objectives of this study. The chapter starts by elaborating on the qualitative research approach, constructivist paradigm and the grounded theory methodology adopted in this study. I then explain my sampling strategy and the techniques used. I discuss my data collection methods, including semi-structured interviews, member check-ins and secondary data collection. I present the methods used for data analysis, namely thematic coding and data display. I then justify my positionality within the study, methods for reflexivity and how I ensured validity and transparency of this research. Finally I explain the ethical considerations and limitations that were experienced through the research process.

In Chapter 4, I present my findings. I first outline the establishment of the GBCSA and the techniques and methods used to develop and introduce green building guidelines and tools in the housing industry. Second, I explore how industry practitioners interpreted and engaged with the GBCSA guidelines and tools to then unpack the barriers that hindered the adoption and implementation of the tools in the early stages. Lastly, I discuss the emergency factor that is the role and influence of a crisis in fast-tracking the implementation of change within an industry.

In Chapter 5, I then discuss my findings in relation to the theoretical concepts and frameworks established in Chapter 2. This chapter is structured in a way to answer each of the three research questions of the research study. I argue that a soft regulatory approach that the GBCSA followed can only be effective if it strikes a balance between voluntary incentives and more prescriptive guidelines. I proceed with recommendations for sustainable design guidelines and

practical suggestions for housing industry practitioners in both the public and private sector. I then conclude by highlighting the limitations of the study and suggestions for future research on the topic that could improve and enrich the findings from this study.

Chapter 2: Literature Review

2.1 Introduction

This literature review aims to provide a conceptual framework that contextualises and provides a theoretical foundation for my study. First, I unpack the challenges faced by the housing sector and the role of design guidelines in building resilient communities in the industry. I identify that policies, strategies or design tools play a huge role in implementing sustainable change within the housing community if design guidelines include sustainability requirements. I then draw on literature that speaks to *issue fields* (Hoffman, 2001) and to *soft regulations* (Sahlin & Wedlin, 2008) to unpack how voluntary regulatory frameworks can encourage change within a field where different stakeholder interpret and respond to sustainability in various ways. I argue that sustainable housing can be understood as an issue field, “in which competing interests negotiate over issue interpretation” (Hoffman, 2001:366), while the GBCSA guidelines can be described as a soft regulation (Sahlin & Wedlin, 2008). Lastly I look into the literature of framing and how frames can be an analytical tool to understand how sustainable change is promoted, interpreted and responded to by various actors (Hahn & Figge, 2016). Engaging with a framing perspective helps us understand how various actors negotiate and collaborate when faced with an issue such as sustainability, within a complex field such as housing.

2.2 The housing sector and the role of design guidelines

This section focuses on unpacking the South African housing sector and its complexities, by discussing the challenges and pressures that many housing practitioners face in the industry. To then apprehend the role of design guidelines in the housing sector, that form part of policies, strategies or even tools implemented by organizations such as the GBCSA.

2.2.1 Challenges faced by the housing sector

Housing is one of South Africa's biggest challenges, characterized by an unprecedented rate of demand and constrained capacity for delivery (Smit *et al.*, 2017). The South African housing context strongly reflects the political struggle the country faced in the past (Smets & van Lindert, 2016). The fall of the Apartheid regime in 1994, may have marked the end of the country's struggle against oppression and inequalities, but according to Ziblim (2013), the country faced “a huge backlog of housing...a deficit of nearly 2.1 million households” - which then became the Post-Apartheid governing party's responsibility to tackle (Ziblim, 2013). Public and private actors in the housing sector tend to respond to this challenge by building houses in the fastest and cheapest way, focusing on meeting immediate needs rather than planning for long term purposes (Ziblim, 2013). Macdonald (2005) in an attempt to interrogate the housing deficit we face, noted that various housing incentives, especially for those that

target middle to low income groups, place sustainable aspects of projects as a last resort or additional costing item (Macdonald, 2005).

The challenges are amplified when dealing with housing for vulnerable or middle to low income communities (Smit *et al.*, 2017). As a result of the Apartheid era's governance and city planning, South African cities were designed to have all communities of colour to be purposely situated in the periphery of the city centre, separated from where the high-income community reside. Apartheid had such a large influence on the housing sector of the country that not only is there pressure to meet the housing demand but pressure to also tackle issues such as race and income inequalities, community resilience and spatial justice.

2.2.2 Role of policies and building guidelines in the housing sector

In the South African built environment context, policies and building guidelines have played and continue to play an important role in shaping the way houses are delivered and the manner in which communities are built (Tissington, 2011). The country's most influential housing policy was established in 1994, the Breaking New Ground (BNG) policy document with a goal "to include a comprehensive national programme, aimed to deliver adequate housing to the poor and meet the housing demand in South Africa" (Ziblim, 2013). The BNG policy was implemented by the African National Congress (ANC) government in 1994, making it one of the first post-Apartheid housing strategies, and is still being used today, more than 20 years later (Mistro *et al.*, 2009).

The policy ignited various responses to the housing demand of vulnerable communities (Ziblim, 2013). The goal of the BNG housing strategy was to enhance the delivery rate of "well-located houses of suitable quality through various innovative, sustainability-driven housing programmes and projects" such as RDP (Reconstruction and Development Program) housing (Tissington, 2011). The RDP housing program, "ambitiously aimed to provide 1 million houses in five years" and rolled out mass community housing establishments across the country (Mistro *et al.*, 2009). However the RDP houses itself were only affordable to people because they were situated further away from the city centre, resulting in the users and inhabitants of the RDP houses to pay extensively for transportation to access facilities and economic opportunities and further deepening issues such as inequality and spatial injustice (Mistro, Hensher, Mistro & Hensher, 2009).

Housing policies and strategies for both the public and private sector, can be tools for the country to build resilient communities and promoting sustainable living (Tissington, 2011). Building homes, cities and communities requires policies and guidelines to give importance to sustainable design that not only meets the demand but ensures mistakes of the past are resolved. Apartheid scars such as spatial injustice, segregated communities, and lack of neighbourhoods ownership are all issues that the country still

faces, but can be tackled with guidelines, tools and policies that encourage resilience and sustainability on a larger scale.

2.2.3 Sustainability in the broader South African housing context

Initiatives aiming to promote sustainability have often been perceived as time consuming and expensive add-ons (Harris & Crane, 2002). Whether initiatives aim at greening the housing sector or redressing spatial injustice stemming from the Apartheid, they are generally not given much importance. This is further deepened in housing projects for the vulnerable communities where priority is given to minimize costs in order to provide affordable housing solutions for the middle to low income communities (Media Office, Human Settlements, City of Cape Town, 2019).

Sustainable design was neglected in the RDP housing projects introduced in the section above, as a result of it being disregarded in the BNG housing policy (Mistro *et al.*, 2009). RDP homes were designed as standalone units, separated from one another by 5m each (Tissington, 2011). This minor design mishap affected the entire housing project as households felt isolated and cut off from one another, leaving many users unable to build social dynamics or a sense of community and belonging within the housing project (Mistro *et al.*, 2009). RDP units satisfied the immediate housing demand by following the policy brief, but did not meet the long term goals of building sustainable and resilient communities that tackles the larger problems the housing sector faces (Mistro *et al.*, 2009). The RDP housing project is a prominent example of how heavily the industry relies on policies for guidance. However the motives of the policy have proven to be isolated to the needs and necessities of the context (Tissington, 2011).

Meeting the growing housing need of the country cannot be done without considering elements such as accessibility, adaptability of living space and conservation of the environment – all crucial sustainable design elements (Tissington, 2011). Macdonald (2005) goes on to say that “Humane design is the most important principle of sustainable design... focus on enhancing the coexistence between buildings and the greater environment” to ensure communion between the occupants and the urban landscape they live in (Macdonald, 2005). Having open spaces in a building encourages community engagement and community bonding; having visible social areas establishes a culture of social cohesion and having shared spaces encourage user participation and contribution such as gardens or recreational areas, community initiative and responsibility (Mistro *et al.*, 2009). Charles Montgomery’s (2013) *Happy City* book is a stab at looking into how important housing plays a role in community development, with how people act, achieve goals, and interact with others and contribute towards a green city or community (Montgomery, 2013). With social experiments, review of existing urban designs around the world and interviews with architects and urban planners, this book comes to the conclusion that sustainable design has a significant role to play when catering for our present and future needs.

RDP housing units are only an example of the many housing strategies practiced in South Africa for low-middle income communities - but it clearly highlights the misrepresentation and/or lack of sustainability principles in the policies and guidelines that support it (Mistro *et al.*, 2009). Sustainable design guidelines need to be prominent and approachable in all policies or strategies that target housing in our current context (Alfaro *et al.*, 2018). Alfaro and colleagues (2018) emphasize the fact that housing strategies “needs to be reinterpreted and translated into a new political language” leading to “new interpretations of design, infrastructure, property and citizenship, and inspire new modes of housing interventions in the contemporary city” (Alfaro *et al.*, 2018, p 134).

2.2.4 The GBCSA sustainability guidelines

The sustainable guidelines and certification tools issued by the GBCSA represent a strategic initiative aimed at promoting more sustainable housing in South Africa through a voluntary approach (GBCSA, 2018). The GBCSA stands as a regulatory body that implemented certification tools and sustainability guidelines that both the private and public sector for housing can use for any housing projects. Since 2010, the GBCSA aimed to build networks within the industry, use the skillsets and resources of the context and educate and raise awareness within the industry on the benefits and economical long-term advantages that sustainable green homes can produce (World Green Building Council, 2016).

The implementation of the GBCSA and the adoption of the Green building certification tools are an accurate example of the complexity and challenges faced in industries that are participating in change. How South Africa addresses housing issues today is a determinant factor in the country’s ability to build resilient communities and promote sustainable living (Biggs *et al.*, 2012). Examining the development and success of the GBCSA and its tools can provide valuable insights and help us better understand how to design guidelines for sustainability in the housing sector and ensure the development of resilient future cities.

2.3 Issue fields and the role of soft regulations

The concept of “*issue fields*” (Hoffman, 2001) provides a theoretical lens in understanding the complexities at play in the housing sector, in the transition towards sustainable practices. Hoffman (2001) describes issue fields as a conceptual model that links different constituencies that operate within the same field, with conflicting views that may emerge in relation to an issue (Hoffman, 2001). As mentioned in the previous section, there is an overall misrepresentation of sustainable measures within the housing sector due to various interpretation of the *issue* that is sustainability, within the *field* of housing. An issue field perspective helps analyse the field, the different actors, and the cultural frames or perspectives these actors use to interpret the issue and how they approach it (Feron & Bertels, 2021; Hahn & Figge, 2016)

The sustainable guidelines developed by the GBCSA can be understood as ‘*soft regulations*’ (Sahlin & Wedlin, 2008) aimed at promoting change in ‘*issue fields*’ (Hoffman, 2001, 2016) – a space in which various constituents negotiate and contest industry practices. Soft regulations are “non-hierarchical rules that are not legally binding...and are mostly informal or flexible, open to interpretation and adjustments” (Sahlin & Wedlin, 2008, p 13). The GBCSA tools are a form of soft regulations that enable sustainable change in the ways of usual practice in addressing the housing demand.

2.3.1 Sustainability in housing conceptualized as an Issue field

Exploring the sustainable housing context through the lens of an issue field ensures all stakeholders and their perspectives are noted (Hoffman, 2001, 2016). This theoretical frame helps to understand how actors within the housing industry, deciphered sustainability as an issue and how these various interpretations led to various responses and actions (Feront & Bertels, 2021). Hoffman (2001) explains how “fields are understood as centres of debates in which competing interests negotiate over issue interpretations” to form an “issue-based approach” (Hoffman, 2001:356). An issue field perspective helps to understand how collective rationalities within the housing industry collectively responded to external pressures that required a change in their familiar methods of practice.

In the context of housing, especially for low-middle income communities, there are multiple actors that contribute towards the change and complexities of the issue field that is sustainable housing (Smit, Musango, Kovacic & Brent, 2017). These actors include public sector officials, private sector developers and practitioners, consultants, civil societies and the public. Therefore, an issue field approach that explores the diversity of actors and the influences behind their actions seems best suited to gain an insight into the complexity and dynamic nature of the field (Feront & Bertels, 2021). Furthermore, analysing how fields were formed by what a participant views as important or not important, gives insight into understanding how “organizations confront incompatible social situations...and resistance to change” (Hoffman, 2001:368) An issue field perspective provides insight into what motivates or hinders actors into participating or rejecting any instruments of change such as policies or strategies that push for sustainability in a field they are familiar with, such as housing.

Hoffman (2001) further explores how non-profit driven measures such as environmental issues “are treated as economic externalities” and so “solutions are artificially introduced through regulations and responsibility is delegated to a regulatory function with a focus on what companies must do to tackle this environmental issue” (Hoffman, 2001:365). This regulatory approach makes the relationship between corporate practice and environmental protection disconnected, categorizing any environmental or sustainability measures as unnecessary regulatory constraints and not a social obligation (Hoffman, 2001; Sahlin & Wedlin, 2008). Hence, to avoid such a regulatory approaches, instruments or guidelines for change must strike a balance between enough ambiguity to invite participation and enough specification to bound and control the response (Feront & Bertels, 2021)

2.3.2 *The GBCSA's guidelines and tools as soft regulations*

In my research context, the GBCSA can be understood as taking on the role of a regulatory organization using soft regulations in the form of voluntary green building guidelines and certification tools to push for sustainable housing. Soft regulations are a result of the shift in governance trends towards an audit like system that instils new norms and values through external regulatory mechanisms (Sahlin & Wedlin, 2008; Wright & Shore, 2000). Soft regulations deem a shift in management “from an intraorganizational level to an interorganizational level...through soft modes of governing in the form of evaluations, audits, assessments or accreditations” (Sahlin & Wedlin, 2008:237). The regulatory organization is then tasked with formulating the rules that monitor and assess what is considered to be appropriate, and also promote the adoption and implementation of those rules (Sahlin & Wedlin, 2008).

In comparison to other methods of regulation, soft regulations aim at promoting a culture of allocating and dispersing responsibilities on a much larger scale (Sahlin & Wedlin, 2008). Soft regulations tend to “reroute responsibility away from the rule setters and towards the rule followers,” as the voluntary approach means those who choose to follow the rules are held responsible instead (Jacobsson, 2004; Sahlin & Wedlin, 2008:221). Organisations and practitioners that choose to engage with the GBCSA and its tools become partly responsible in its adoption and in the production of resilient sustainable homes.

Soft regulations however comes with various consequences or risks, such as responsibility spirals, lack of voluntary engagement and a culture of defensiveness as a result of actor's perceived lack of control in regulation (Jacobsson, 2004). Soft regulations can also lead to an “instrumental approach” to sustainability, where actors primarily engage in the hope of making monetary gains but do not recognize the intrinsic value of social and environmental systems (Hahn & Figge, 2011). However, Sahlin and Wedlin (2008) state that soft regulations can help bring about a shift in what is deemed acceptable and legitimate in a specific market. Stakeholders who seek greater understanding and control over the shift in market practices do so “not by avoiding regulation but rather becoming actively involved in issuing and supporting a regulatory schemes,” such as soft regulations (Sahlin & Wedlin, 2008:233).

2.4 Framing lens to analyse the design and impact of change initiatives

The nature, content and impact of a soft regulation can be analysed through the lens of framing (Benford & Snow, 2000; Feront & Bertels, 2021). In order to understand the complexities that lie within the implementation of sustainability in the housing sector, it is important to analyse how sustainability was promoted to the industry and how the industry responded. The framing perspective helps to appreciate the emergence of new meanings and ultimately the rate and depth of change in the context (Purdy, Ansari & Gray, 2017). Framing literature highlights that how an issue is presented by some actors is likely to influence the way it will be perceived and addressed by others (Feront & Bertels, 2021).

The actors who use framing as a tool to promote the understanding of issues are called *proponents* and those that are targeted by the framing process for a response are the *recipients* (Feront & Bertels, 2021). When proponents of change *frame* an issue, they position the challenges that need to be addressed and inspire people to act (Purdy, Ansari & Gray, 2017). Through the positioning of the issue, the proponents aim to illicit a response from the recipients and shape a solution to the issue (Benford & Snow, 2000).

A framing perspective helps to understand both how proponents structure the issue and how recipients interpret and respond to the issue uniquely as a result (Benford & Snow, 2000; Feront & Bertels, 2021). This duality offers a powerful way to connect different mindsets and analyse the intricacy that lies within issue fields and how actors perform to tackle the issue (Purdy, Ansari & Gray, 2017). As such, framing is an interesting lens from which to unpack both how the GBCSA framed its initiative to promote change and how the various stakeholders interpreted and responded to the initiative, tackling the issue of sustainability within the housing sector.

Understanding the process of framing and the response by various actors, helps to unpack the complexities that lie in the process of change (Benford & Snow, 2000). Hoffman (2001) describes change as requiring actors within the context to “break down traditional structures and beliefs that have become institutionalized over decades,” emphasizing the intricacies and dynamics behind change (Hoffman, 2001:357). A framing theoretical lens thus equips one to analytically unpack the intricacies and complexities that come with pushing for sustainable change in the housing sector.

2.4.1 *Frames used by proponents to promote change*

The act of framing by proponents of change is “an active, process-derived phenomenon that implies agency and contention at the level of reality construction” (Benford & Snow, 2000, p. 136). Through the framing process, proponents create frames that shape the understanding of an issue (Benford & Snow, 2000). Frames tend to change and evolve continuously as they spread and interact with actors in the context (Benford & Snow, 2000). One way in which frames evolve is when a proponent strategically selecting and modifying components of an existing frame to make it more evocative to the target recipients for participation (Feront & Bertels, 2021). This process of adapting the frames, through which the initial key components of a frame is reinterpreted and evaluated, is referred to by Goffman (1974) as *rekeying* (Goffman, 1974). Identifying and understanding the process of rekeying in a context emphasizes the effect of actor interpretation and interaction when it comes to change and dealing with an issue field (Feront & Bertels, 2021). Sustainability, as a contested frame in the housing sector, is likely to be reworked, adapted, reinterpreted and modified by the various stakeholders as they engage with the change initiative.

Frames tend to have three components: a *diagnostic*, *prognostic* and a *motivational component* (Benford & Snow, 2000; Feront & Bertels, 2021). The *diagnostic component* aims to shape how a

problem is understood and who is to be blamed for it. The *prognostic component* proposes ways of addressing the problem, and the *motivational component* invites engagement and participation in the change (Benford & Snow, 2000).

In the content of the housing industry, the GBCSA can be understood as the proponents of change. The guidelines and the tools developed by the GBCSA to promote sustainability in the housing sector can be understood as a framing effort. The content of the frame that they used to promote change can be analyzed through its three components, namely its diagnostic, prognostic and motivational component. This can help us better understand how change unfolded within housing industry (Feront & Bertels, 2021).

2.4.2 *Frames used by recipient to interpret the need for change*

Framing is also a useful lens to understand how recipients of change initiatives react and engage with the change initiative (Purdy *et al.*, 2017). In this case, frames correspond to the interpretive responses of recipients. In the context of my research, recipients are public and private housing professionals.

Recipients may react differently to the same change initiative, generating diverse interpretive frames. For instance, in their research on responsible investment in South Africa, Feront and Bertels (2021) identified three responses by recipients of change in the financial industry: *dissociating*, *normalizing*, and *moderating* (Feront & Bertels, 2021). These three frames show how individuals and organisations within the industry perceived or reacted differently to the responsible frame constructed by the proponents (Feront & Bertels, 2021). Some recipients engaged in *dissociating*: negating the core problem by challenging the urgency or not taking responsibility in participating in the change or issue (Feront & Bertels, 2021). Other recipients engaged in *normalizing*: where actors “interpret[ed] implementation strategies in line with their current method of practice”, but in a way that undermines the importance of the issue as they feel no major change or action is required further (Feront & Bertels, 2021). Lastly, some recipients engaged in *moderating*: a response best described as when actors defend existing beliefs and methods of practice over the need to change (Feront & Bertels, 2021). These frames help to understand the diversity of reactions to change. Identifying such reactions in the housing sector may assist with strategizing and designing effective sustainability guidelines.

2.4.3 *Ambiguity vs prescriptive framing*

Framing literature further looks into the question of using ambiguity to improve the uptake of change initiatives (Feront & Bertels, 2021; Howard *et al.*, 2017). Prior literature has pointed to ambiguous frames to help with mediation between the various interests of actors in the industry and even to support accountability and monitoring of efforts towards institutional change (Ferraro *et al.*, 2015). Sustainable policies and guidelines need to strike a balance between being ambiguous and prescriptiveness, with “enough ambiguity to invite participation, and enough specification to regulate the understanding of the

problem to promote the experimentation of new practices, and clarify the impetus for action” (Feront & Bertels, 2021:1136).

Ambiguity has been defined as “the special doubt that can arise over the definition of a situation” (Goffman, 1974:302) by vagueness in specificities or by leaving room for multiple possible interpretations. Ambiguity is also said to “enhance actors’ ability to manoeuvre between diverse and possibly contradictory institutional demands, limiting the need for purely ceremonial responses to external pressures while maintaining dynamism and heterogeneity in change efforts” (Feront & Bertels, 2021:1139). However Feront and Bertels (2021) argue that the level of ambiguity must be controlled and balanced with supporting clear measures that guide implementation of any change. Ambiguity could lead to false notions of progress, which can be counterproductive to the realization or urgency for change (Feront & Bertels, 2021).

An in depth understanding of all the methods of framing and various frames can therefore help understand how policies or guidelines can strike this balance between ambiguity and prescription to ensure effective implementation (Feront & Bertels, 2021; Gioia, 2012). In the housing context of Cape Town, the City of Cape Town municipality has also made it very clear that they prefer voluntary approaches to strict top down regulatory policies. Their position is that the “one-size-fits-all strict regulation approach is not the answer to our human settlements challenges...we need to leave room for sovereignty in implementation” (Media Office, Human Settlements, City of Cape Town, 2021). Unpacking the extent to which the GBCSA used ambiguity to invite participation may shine a light on interpretive dynamics at play within the housing sector.

2.5 Chapter summary

In this chapter I discussed the theoretical frameworks that assisted me with analysing and understanding my research topic and objectives. The literature review also provided me the opportunity to unpack the context of the housing industry, what it was and what potential it has for the future. Exploring examples of existing policies and strategies that the housing sector implemented gave key insight into what the industry deems most important and how the response to address the housing needs of the country reflect that. I also discussed the overall misinterpretation that is placed on sustainability and the urgency to address it alongside meeting the housing demand. It was beneficial to explore the failed housing strategies to understand just how impactful policies, strategies and design guidelines can be if it does not consider the current needs and the future needs of a community. Secondly I discussed the theoretical framework of issue fields and soft regulations, pointing to the importance of recognizing and evaluating how various actors interact and contribute to their context. Lastly, I discussed the theory behind framing and techniques of framing that assist proponents to implement change, and recipients to adopt and interpret these changes.

Chapter 3: Research Design

3.1 Introduction

In this chapter I explain the overall research approach, methodology and methods that were followed to conduct my study. First, I explain why a qualitative research approach and constructivist research paradigm were best suited to understand and engage with various practitioners within the housing sector. Second, I justify my choice of grounded theory methodology and how I applied this methodology in my study. Third, I unpack the research methods used to sample the research participants, collect data and analyse the data. I further explain how data collection and analysis followed an iterative process. Fourth, I discuss factors such as researcher positionality and reflexivity. Fifth, I discuss how I approached validity and how I engaged with ethical considerations of this study. Finally, I acknowledge the research limitations.

3.2 Research approach

The research approach outlines the overall tactic to address the research objectives of this study (Stern, 2017). Firstly, I discuss why this study relied on a qualitative approach and why qualitative data was deemed suitable for this research. Secondly I look into the chosen research paradigm and why it is best suited to this study.

3.2.1 *Qualitative research*

Qualitative research is a method suitable for studies involving a complex area of variables that cannot be easily quantified (Rahman, 2020). This makes qualitative research approachable and effective in understanding a complex area such as housing, and unpacking the experience and perspective of housing industry practitioners involved with sustainability initiatives in the context (Bell & Bryman, 2007). The research approach allows to collect qualitative information that is open-ended, emerging data for “studies that use subjective assessment, to deepen the understanding of how things happen” in a context (Bell & Bryman, 2007:63). A qualitative research approach gave me the opportunity to study multiple meanings of individual experiences within the same context (Lee, 2012). Qualitative research is well suited for understanding the ‘lived experiences’ of participants in a context that went through change or adoption of new methods of practice, giving the data a richer background and depth (Lee, 2012; McGrath *et al.*, 2021).

Since qualitative data can be subjective and specific to the context and participant experience on a topic (Bell & Bryman, 2007), they are not always generalisable. As explained by Bryman (2011) personal explanations may be “prone to attendant prejudice”, and may lead to “difficulty in generalizing the results to larger groups” (Bryman, 2011:28). As a result, qualitative research can restrict statistical

representation of the data making it difficult to replicate the findings (McGrath *et al.*, 2021). Since qualitative knowledge tend to be particular or contextual in nature, I triangulated my data using three different methods; semi-structured interviews, member check-ins, and secondary data collection. This allowed me to compliment possible shortcomings of qualitative data while gaining a deeper understanding of the context of my study.

3.2.2 Research paradigm

Since my study aimed to investigate the different perspectives of actors and how this influenced change processes in the housing sector, I adopted a constructivist research paradigm. A constructivist paradigm understands reality as a subjective phenomenon that is contextual and perceived differently by individuals (Rahi, 2017). The constructivist paradigm is well suited to understand how various actors perceive an issue and how this in turn influences their response to the issue. In this study, I looked into how practitioners within the housing sector interpreted sustainability, the urgency to address it, and the methods they deemed best suited to tackle the issue. A constructivist paradigm assisted with understanding how various stakeholders and housing practitioners from both the public and private sector perceived and reacted to the need for change, such as the implementation and adoption of the GBCSA tools.

The different perceptions, reactions and ideologies from various industry practitioners on the same reality can sometimes conflict or align. Through a constructivist approach, I was able to identify and make sense of these different subjective realities, to possibly find links between them. This research paradigm thus assisted me to explore reasons and patterns behind the differences in opinions. Certain practitioners that were a part of the research, viewed sustainability and the need to address it as a reality that does not need to be prioritized, whereas others practitioners have different takes on how urgent the matter is and how to approach it accordingly. Understanding these different perspectives on sustainability within the housing sector ultimately assisted me with developing tangible recommendations for implementing sustainable design guidelines within the industry.

A constructivist paradigm is a step away from the usual ways of problem solving I have been exposed to. As an architect, I am trained to use mathematical or quantitative methods to solve problems with quick solutions. However over the years, studying and working with social and environmental issues that deal with various stakeholders, have made it clear to me how quantitative data is not enough to reflect and fully map out the features of a complex phenomenon that is implementing sustainability within the housing sector.

3.3 Research methodology

In line with the constructivist paradigm of my research, I used a grounded theory methodology to guide my approach to data collection and analysis. The grounded theory methodology allowed to an iterative process between data collection and analysis, and was best suited to progressively unpack the various complexities of the housing industry (Suddaby, 2006; Bryant & Charmaz, 2007).

3.3.1 *Grounded theory*

Grounded theory allows researchers to gain interpretive insight by encouraging data to be collected alongside theory consultation, allowing for the possibility of a theoretical emergence from the analysis (Suddaby, 2006; Charmaz, 2007). Suddaby (2006) describes grounded theory as “an interpretive process that depends upon the sensitivity of a researcher to tacit elements of the data or meanings and connotations that may not be apparent from a mere superficial reading of denotative content” (Suddaby, 2006:638). To align with my research paradigm, I applied Charmaz’s (2007;2005) constructivist version of grounded theory. Her approach to grounded theory is particularly relevant to map how actors within a field construct their own meaning of the topic, and how their opinions influence their response and actions within this field (Charmaz, 2007)

Grounded theory offers a flexible approach that assisted me with investigating how individuals derive meaning from their experiences in a complex phenomenon and to then group and analyse the various data collected to explain the findings in theoretical terms (Suddaby, 2006). The iterative nature of grounded theory was applied using the *constant comparison* technique that requires continued assessment and analysis of the findings, situating emerging insights in light of the complex relationships between actors that operate in the research context and the theoretical frameworks established by prior research (Charmaz, 2005). This assists researchers to engage on a practical level with their data without separating the methods of data collection and data analysis (Suddaby, 2006).

The iterative process of the methodology is illustrated in the diagram below (Figure 1), that shows the research components each linked to one another in a closed loop format, showing how each step flows into the next, influencing the results of the next. This research loop design provides the opportunity for data or findings to influence the theoretical framework of the research topic and vice versa.

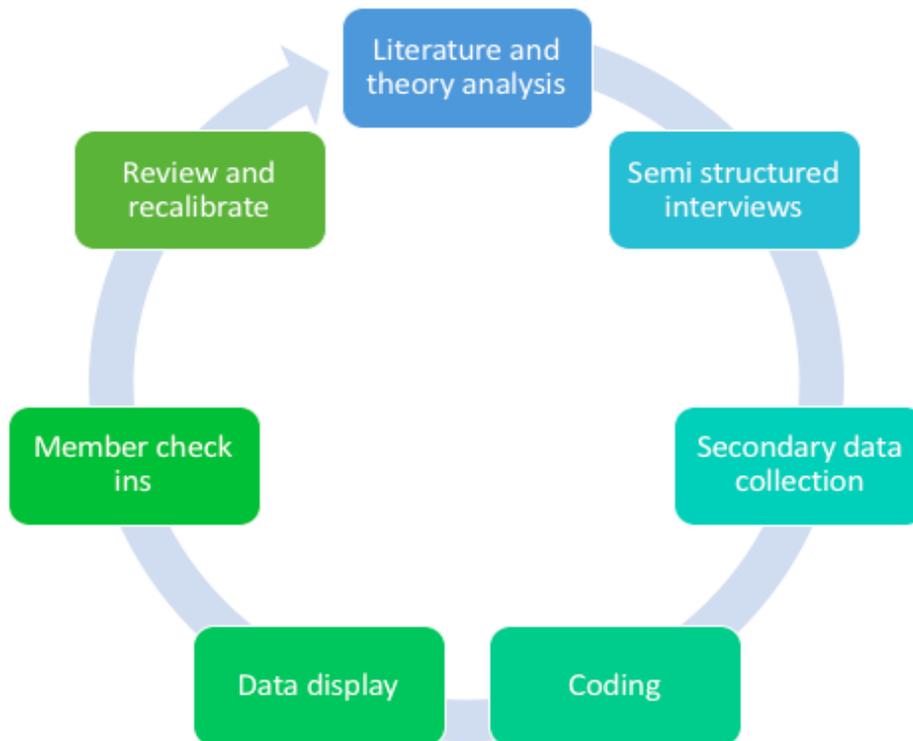


Figure 1: Loop diagram illustrating the iterative research design process

The value of the grounded theory approach lies in the fact that it helps avoid making assumptions on a phenomenon that were not grounded in field data. Moreover, the analysis of the data and the theory side by side enabled me to gain insights and constantly compare what I found with what the theory said about my phenomenon (Charmaz, 2005; Charmaz, 2007; McCallin, 2009). One of the shortcomings of the grounded theory methodology is that it is quite time consuming and the back and forth analysis of data and theory can be strenuous (Stern, 2017). However, the adaptability and constant reworking involved in this methodology, was helpful for me when I was required to alter my topic to change my focus to another field of research. Because of this methodology's transparency and thorough data analysis process, I was easily able to pick up from where I left off and accommodate the research topic alteration.

As Suddaby (2006) clearly emphasizes, grounded theory is not a method of theory testing and presentation of raw data, instead this iterative methodology requires a constant process of data collection, reflection and evaluation to thoroughly understand the topic (Suddaby, 2006). The methodology not only takes into account "what is being told, but how it is being told and the conditions of what is being told" (Charmaz & Thornberg, 2020:5).

3.4 Research methods

I combined various data collection and data analysis methods to gain an understanding of the dynamics taking place in the housing sector and the influence of the GBCSA tools. In this section I firstly discuss my sampling approach used to establish where my data would be collected from. I secondly explain the three methods used to collect data; semi-structured interviews, member check-ins and secondary data collection. Lastly I discuss the two data analysis methods, coding and data display, which were used simultaneously with the data collection efforts, in line with the iterative nature of the grounded theory methodology of this study.

3.4.1 Participant sampling approach

The unit of analysis for my research – or focus of my study - was the GBCSA’s approach to change and its influence on the housing sector. To gain an understanding of my unit of analysis, my sampling approach targeted a specific population who held valuable knowledge about it (Etikan *et al.*, 2016). I sampled my participants from the target population based on two categories; *proponents* of changes in industry practices or *recipients* of change (Benford & Snow, 2000). Proponents of change refer to practitioners in the housing industry who worked to develop and promote the GBCSA tools in the housing sector. These includes urban planners, architects and policy makers from the public sector and developers, architects, engineers and green building consultants from the private sector. The recipients group consists of professionals those who participated in the implementation of the GBCSA guidelines and tools. The recipient group was divided into two groups: on the one hand housing professionals from the private sector and on the other hand, housing professionals from the public sector. The sampling from the three groups is illustrated in detail in Table 1 below;

Table1: List of participants interviewed during the research process

Research Groups – 16 Interviews	RG A GBCSA Tool developer	RG B Tool Users – Private Sector	RG C Tool Users – Public Sector
No of Participants	6	5	6
Involvement with GBCSA Tools	Practitioners involved in the development of the tool by either working in the GBCSA or form part of the Focus stakeholder group	Practitioners using the various tools in the Private Sector frequently	Practitioners with some experience in using the tool (Key observers in the process)

Having the opportunity to work with a green building consultancy firm linked to the GBCSA, I had met various stakeholders that were directly involved with the development and establishment of the GBCSA. This assisted me to identify the key stakeholders and create an initial sample group of participants from both the public and private sector. The list of participants are outlined further in Appendix A. However due to time and research constraints, it was impossible to extend the research to include and involve a larger representation of the target group in the study, and so the three sample groups were formed using the two sampling methods to identify key individuals who would accurately reflect the features of the target population. A sample group formed by a combination of sampling techniques assists with data reliability as a deeper and more thorough representation of the target population can be achieved in this way (Etikan *et al.*, 2016). Hence the following two sampling techniques were used for the formulation of the three sample groups:

3.4.1.1 Purposive sampling

Purposive sampling is used in studies that involve a large target population and requires a much smaller sample group for research purposes (Etikan *et al.*, 2016). It is also the method of sampling used for “approaching people that are deemed by the researcher, to have valuable knowledge or experience in the area of study” (Suri, 2011). For this study, I approached individuals who worked directly with the Green building council tools and the housing sector. This method was resourceful for this study to set up the initial sample group with extensive experience on both the green building sector and the housing sector. However through this sampling method alone, the ideal number and diversity of participants were not met, and therefore I utilized a second sampling method.

3.4.1.2 Snowball sampling

As explained by Etikan *et al.*, (2016), this method describes a scenario whereby one reference leads to another reference and then to the next and so forth. This method proved to be very beneficial for the most part, as it brought in research participants from various backgrounds and built up the network and diversity of the sample group. However, there were a couple of references directed to individuals who were not directly working within the housing context or linked to the GBCSA, hence conversing with them did take the conversation a little off track, even if it was still a positive contribution to the overall research journey.

The sampling technique allowed me to get in contact with key policy makers in the housing schemes and influential practitioners in the green building sector, which would not have been possible without network links and support from the initial sample group. The process of getting key informants was relatively simple, as I did not need to travel or search for participants individually. Instead, I was able to make contact to participants via online through the recommendations from participants that formed part of the initial sample group. Nonetheless due to the fact that I relied on respondents to get contacts

of other respondents, the process was rather time consuming and unpredictable, as the task fell on participants to find or suggest the next research participant.

3.4.2 Data collection methods

This section speaks to the various qualitative data collection methods that were used throughout the research study.

3.4.2.1 Semi structured interviews

Semi structured interviews are a qualitative research method that involves individual dialogues with a small number of respondents, to explore their diverse perspective on a particular idea or situation (Bryman, 2011). This research method provided me with the opportunity to obtain first-hand data, establish a good relationship with interviewees and explore underlying complexities within the housing industry context of South Africa (Brinkmann & Kvale, 2018). Semi-structured interviews were conducted with all three sample groups explained in the section above, to get a diverse and detailed perspective of the context at hand.

The semi-structured nature of the interviews helped to get comprehensive answers from the interviewees in a natural and more personal manner (Hawkins, 2018). As shown in Appendix C, the interview comprised of several key questions that help to define the area of research to be explored in housing, but also provide room for both the interviewer and the interviewee to deviate from the pre-set questions to pursue any emergent idea or respond to a topic area in more detail (Hawkins, 2018; Probst, 2015). The questions I asked during the interviews aimed at understanding the participants' perspective and role in implementing sustainable changes in the housing sector. A few starting questions were based on the individual's experience in working with the GBCSA's tools, either with implementing the tool or adopting the tool into practice. The interviews then allowed for the opportunity to dive into possible design guidelines or tools that can improve adopting of sustainability initiatives within the housing industry. I prepared the questions for interviews beforehand, and also had them reviewed by an external researcher for further validation to limit researcher bias.

The interview method allowed flexibility and did not restrict the notion of conversation. As Brinkmann and Kvale (2018) stated that conversation during interviews dive into topics deeper and provide greater insights into the interviewees experience and stance on the research topic (Brinkmann and Kvale 2018). Semi-structured interviews supported the iterative research nature of my research, as it gave me the opportunity to use the data collected to refine my initial research objectives and to rework my interview guide going forward (Evans & Lewis, 2018). Interviews helped me to establish a one-on-one relationship with the participants and achieve a level of comfort in sharing thoughts and personal opinions about matters. Also noteworthy was the fact that this research method provided the opportunity for me to pay attention to body gestures and other signals from the interviewees as an added layer of

data which I could deduce meaning from (Paine, *et al.*, 2020; Probst, 2015). Gestures such as excitement or lack of interest when speaking about certain topics all reflect the interviewees relationship and opinion about certain topics.

In total, 15 interviews were conducted on the three distinct target participant groups to get a broad understanding of the research context and the personal view and experience of each participants role in the industry. These interviews allowed me to capture a large amount of in depth and rich data, even with a limited number of respondents, compared to other research methodologies such as questionnaires or surveys which are normally administered in bulk for generalizability's sake (Evans and Lewis, 2018). A major shortcoming however of semi structured interviews is that the methodology is heavily dependent on the participant's time, mindset and willingness to contribute to the research study, and requires planning and communicative skills from the researcher to cater for such shortcomings (Paine *et al.*, 2020). In some cases participants strayed far off from the interview questions, which did not necessarily contribute to the study, or participants were limited in terms of time and therefore could not participate as fully as other participants. Researcher must also be aware of possible bias in the questions asked. Due to the subjective nature of this data collection method, any preconceived assumptions from the researcher or the participant can heavily influence the outcome and tone of the interview (Kelle, 2021). This matter was however, addressed through the various data analysis methods discussed in the section below, that were done side by side to the data collection methods due to the iterative grounded theory approach of the research study.

3.4.2.2 *Member check-ins*

Research done within a contested space such as the housing industry, with actors having varying perspectives and personal experiences, methods to ensure data validity and reliability are necessary (Payne, 2018). Member check-ins, also known as participant validation, are a continuation of the semi-structured interview data collection method that took place. Member check-ins are a method of collecting feedback from the research participant after sharing the findings with them, in order to validate the findings and to add on anything that was not explored during the interviews (Payne, 2018). I was able to conduct 3 member check-ins in total with 7 out of the 15 research participants.

Member check-ins provide an opportunity to add on further data or information to any emergent findings or conclusions derived from other methods of data collection (Bansal, 2003). This method of data collection reduces the impact of researcher bias, as initial findings are discussed and critiqued with the research participants themselves (Bansal, 2003). This method was hugely beneficial in summarizing the key findings and recurring themes, however the process was extremely time consuming and not all participants who were interviewed, were available for a member check-ins session. Furthermore, the semi structured interviews were conducted individually, whereas most member check-ins were

conducted as a group for time efficiency. Engaging with participants as a group and reflecting on the findings from the study was hugely beneficial and contributed another layer of analysis to the findings.

3.4.2.3 Secondary data collection

Secondary data collection involves reviewing and evaluating textual material or content as a form of qualitative data collection (Pollach, 2012). For my initial exploration regarding the housing sector and the role of the GBCSA, I consulted various content such as media, annual reports, articles and websites from green building discussion forums. In order to understand the role of policy, design guidelines or any form of housing strategies, I use this method of data collection to familiarize myself with the context by reviewing documents, published policies and frameworks that have had a direct influence on housing delivery and design in South Africa.

Secondary data collection also involved gathering information on the Green Star rating tools introduced by the GBCSA. To understand how the tool was adopted and implemented within the industry, it was necessary for me to examine the various versions of the tools itself to examine the format, alterations and overall design and motive of the tool. Analysing such content required time as copious amounts of resources was consulted. This research method can be limiting if the researcher tries to map his or her findings to what has been found by other researchers, making the findings and knowledge that is shared to be repetitive (Prior, 2014). To avoid this, I consulted this information in the later part of my research, once I have already identified emergent trends from primary data.

3.4.3 Data analysis methods

The data analysis approach for this study involved two methods that assisted me with analytically sorting through the qualitative data to form reasoned findings and accurate themes of understandings – the two approaches include thematic coding and data display through the tables.

3.4.3.1 Thematic coding

In grounded theory, coding is used to first identify and compare concepts that emerge from the initial data, and then compare these emerging concepts or findings with theories established in the literature review (Charmaz, 2005). Coding is an iterative process that requires constant evaluation of the raw data collected during the research methods of data collection, to be continuously referred and reviewed next alongside the theories and literature concepts that speak to the topic. I used the qualitative analysis software ATLAS.ti to code and analyse my data throughout the research process. This program allowed me to streamline the data analysis process by providing a single repository for all the data collected, enabling the easy creation of codes and categories, facilitating the constant comparison of themes and concepts, and helping me to progressively weave in existing literature (Charmaz, 2005).

Firstly, all data collected via the data collection techniques, such as interviews and secondary content, were transcribed and uploaded into the ATLAS.ti program for coding. The program then allowed me to review all data and code or label the findings or themes that are similar or stand out. Figure 2 below illustrates a snapshot of the coding program and how a transcribed interview was coded with various labels as shown on the right of the figure.

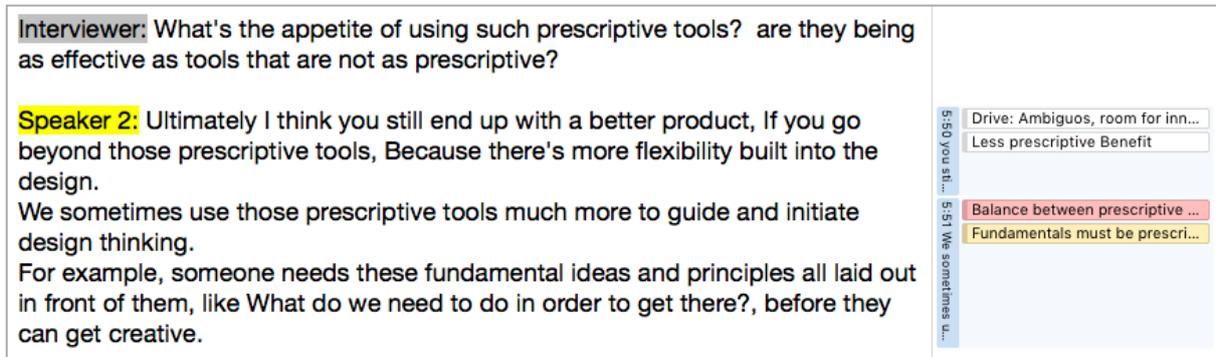


Figure 2: Image showing a snapshot of the Coding program ATLAS.ti and the method of coding

Coding helps to continuously analyse and summarize similar data into themes that emerge from the participants (Paine *et al.*, 2020). Consistent with a grounded theory approach, coding helps the iterative process, going from data collection to data analysis and reworking the themes, investigating emerging themes with further data collection, and progressively weaving in the literature into the findings (Pollach, 2012). Proceeding many rounds of coding and recoding the primary data, groups of codes and themes emerged, based on patterns and variations within the data. As shown in Figure 3 below, on the left of the image the codes were summarized into themes according to a relatable research objective or a specific theme or just a grouped together out of commonalities, resulting in various grouped codes that start to depict a pattern in findings. Figure 3 also illustrates how prominent certain codes are or how frequently a specific theme was discussed, compared to others by visually displaying on the far left of the image, the number of times each code was cited.

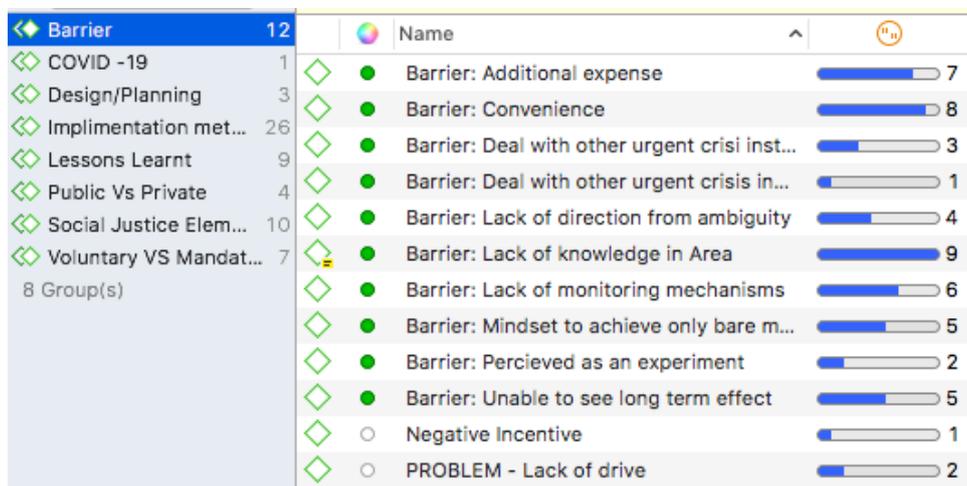


Figure 3: Image illustrating the ATLAS.ti program coded groups and themes from the initial findings

The usual shortcoming of this analysis methodology is that it can result in human errors or wrong analysis, as the process of coding is based purely reliant on the researcher (Parameswaran *et al.*, 2020). By coding, the integrity of the primary data collected can also be affected as the initial meaning of the data can be lost through the rigorous process of coding (Parameswaran, Ozawa-Kirk & Latendresse, 2020). However, Coding assisted me to be reflexive and to structure the themes and findings in a coherent manner.

3.4.3.2 Data display: Tables

I used tables in which I laid out all the findings and themes as the third step to refine codes and groups and compare them with themes established in the literature. This method of establishing connections and filtering through the codes alongside existing literature, helped to unpack the findings on an analytical level. Figure 4 below illustrates the example of how the diagnostic frame discussed in the literature review is unpacked and supported by the coding, themes and direct quotes from the interview that support the frame all in one row.

	Theme – Lack of Motivation and Market Readiness	Sub - Themes	Interview Quote
Diagnostic	<i>Sustainability not seen as a priority in the housing sector.</i> <i>Practitioners Lack Urgency in addressing Sustainable measures in the Housing industry.</i>	Not a hot topic Recipients of the guidelines did not perceive sustainability as a crisis that needed to be urgently addressed.	<i>I can tell you that back when we introduced the tools, Green Buildings were not on everyone's mind in those days – C1</i> <i>We deal with a crisis as they come, and right now, we have unprecedented numbers of homeless individuals-P2</i> <i>(Designed the tool in a general way towards more sustainability, no deadline/ specific area targeted etc) – U3</i> <i>People need a roof over their head first and foremost – P1/</i>

Figure 4: Image depicting a section of the data display table used to merge and regroup codes with theoretical frames discussed in the literature review

Emerging patterns and sub-themes were easily visible through this method of grouping and summarizing. One of such patterns include visually seeing who, out of the three sample groups of participants, contributed or spoke the most about a certain theme or code. Each sample group of participants were also coded according to the sector within the housing industry they are affiliated with, as shown in Figure 5 – the participant sample group key with the assigned code.

Research Participant	Coding abbreviation
P1, P2, P3, P4	Public sector professionals
U1, U2, U3, U4	Private Sector professionals
C1, C2, C3, C4	Green Building consultants

Figure 5: Key outlining the participant sample group and allocated coding

In the example illustrated in Figure 4, we can visually see in the column titled ‘Interview quotes’ participants from the sample group coded ‘P’ spoke and contributed more about the diagnostic framing in comparison to the other participant sample groups.

The tables formulated through the grouping and analysis of codes and themes alongside the theoretical frames, after continuous reworking and iterations are included in Appendix D.

3.5 Positionality and reflexivity

3.5.1 *Researcher positionality*

Positionality refers to the stance or positioning the researcher takes in relation to the research context – that includes the socio-political circumstance and participants that form part of the environment (Gary & Darwin, 2021). The term positionality both describes a researcher’s world view and the position they adopt within a research topic. Therefore in qualitative research it is important to recognize the researcher positionality as it can affect every phase of the research study, from the way questions or findings are initially formulated, to how observations and conclusions are drawn regarding a topic (Gary & Darwin, 2021).

My positionality can be best described as an optimist that sees the role of the public and private sector as equally important and effective in sustainable change. Before embarking on this research journey, I had the opportunity to work as an intern in both the green building sector in a private organisation, and the housing sector in a public organisation. This heavily influenced my research approach as I started the research with the impression that public and private partnership could be a simple solution to all the hindering elements of the issue at hand. Very quickly I was thrown into the realities of how such a solution is far from easy at addressing the issue at hand. With the participant target group, I tried to get a good balance of both private and public practitioners to really understand the complexities that lie within each sector and what hinders collaborative sustainable initiatives. Both sectors face challenges that the opposite sector just simply do not acknowledge – hence bridging the gap between the two sectors required more of a mindset change.

With my most recent internship being with a municipality that dealt with housing, at times I found myself being defensive to critiques or reviews on how the municipality was addressing issues such as housing and sustainability. Furthermore, I was also hesitant on mentioning the fact that I was, at the start of this research study, still employed by the public sector to research participants to avoid any form of bias or discomfort. I tried to be aware and careful with my positionality and its influence on my research study by constantly engaging with my supervisor to discuss findings and queries, in addition to the member check-ins that also validated my findings to avoid researcher bias.

3.5.2 Reflective journaling

Journaling was an ongoing research method that I engaged with throughout the research study to assist me with maintaining my connection to the data and my own conceptualisations of the emerging themes as well as to avoid simplification of the data (Meyer & Willis, 2019). I engaged in journaling as a method of reflexion to document initial reactions or thought in an attempt to respect the profundity of the primary data collected, and to be aware of my positionality and its influence. Being an architect, I was used to carrying a journal to document my thoughts and questions as a way of visually capturing the authenticity or meaning behind a context. Hence, I found it helpful to use this technique to scribble down my findings, thoughts, and questions throughout the research study both visually and through writing. This methodology also proved to be very useful during interviews as, though they were being recorded, having a journal during the interview helped me frame the direction of the interview by noting down the next question or burning thoughts. Journaling helped me to jot down underlying thoughts or reactions from the interaction with the interviewee

Consulting the journaled notes from the various interviews alongside the transcribed interview data, helped with the process of analysis by reminding me of the emotions and overall experience from each of the different interviews. Figure 6 illustrates extracts from my journal to support some of the key findings or recurring themes that were encountered in the data collection methods. Researchers who reflect about their research processes and decisions are able to be careful critics of their own work as they often see exactly those shortcomings that a target reader will identify however, reflective journaling is very subjective to the researchers opinions and thoughts and can be rather time consuming as an analysis process (Malacrida, 2007).

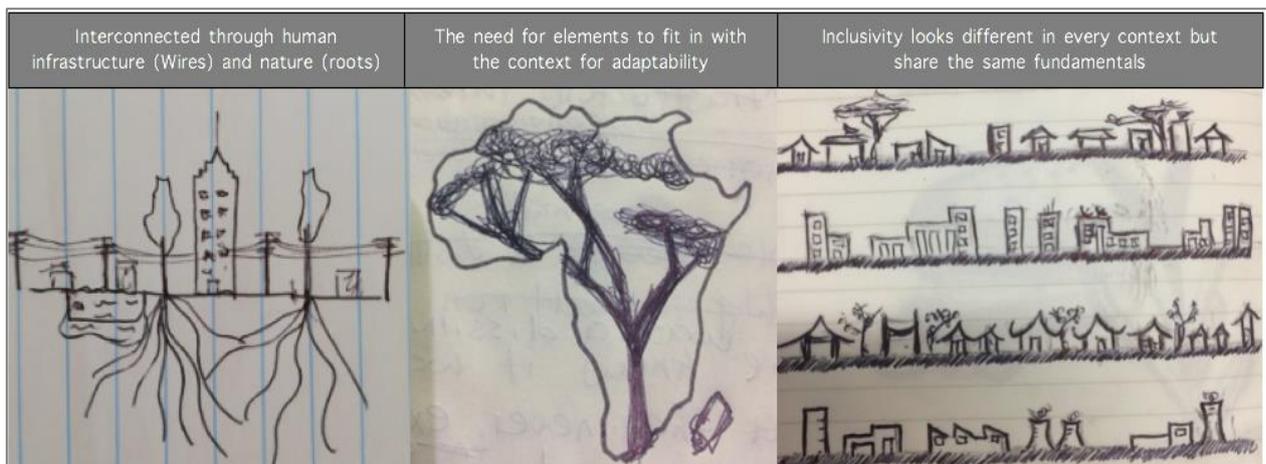


Figure 6: Compilation of journal drawings illustrating broad themes or findings from the data collection methods

3.6 Research validity

This section speaks to methods used to ensure the validity and reliability of the findings formulated from the research study. As Birt *et al.*, (2016) state, the trustworthiness of data or results collected during the research journey is the ‘bedrock of quality qualitative research’, making data analysis and validation methods equally crucial (Birt *et al.*, 2016). The two methods I engage with to ensure research validity are data triangulation and maintaining transparency throughout the research study.

3.6.1 Data triangulation

The term triangulation refers to the practice of using multiple sources of data or multiple approaches to analysing data to enhance the credibility of a research study (Quinlan *et al.*, 2019). Originating in navigational and surveying contexts, triangulation aligns multiple perspectives and leads to a more comprehensive understanding of the phenomenon of interest (Lemon & Hayes, 2018). Hence the method of triangulation provided the opportunity for me to combine all my data collected using various methods, and establish an in-depth and triangulated perspective of the research findings (Quinlan *et al.*, 2019). Researchers differ on the purpose of triangulation; as some investigators view it as critical to establishing corroborating evidence, and others focus on its potential to provide multiple lines of sight and multiple contexts to enrich the understanding of a research question (Lotto, *et al.*, 2014). I triangulated the data collected through the semi-structured interviews, member check-ins and secondary data collection to formulate grounded themes and findings that reflect the context of research accurately.

3.6.2 Transparency

Transparency is one of the most essential elements to ensure validity and reliability of the data collected, especially when the research is conducted in a complex context such as the housing sector. Transparency requires researchers to ensure the traceability of their data, analysis, and methods used to increase legitimacy and credibility of the data (Moravcsik, 2019). Transparency was ensured by making anonymised data available to all participants upon request. Furthermore, the member check-ins process ensured a sense of legitimacy and transparency between me as the researcher and the participants that partook in the research study. Transparency was further maintained through the constant review sessions that took place with my supervisor and fellow masters students, where we shared and reviewed each other’s work and understood each other’s research journey.

3.7 Ethical considerations

Prior to any data collection, Ethical clearance was formally received from the University Research Ethics Committee. The research approach complies with the University's ethical guidelines on aspects of scholarly and scientific research and the project was classified as a low-risk project as data was only collected within a professional organisational context, with no individuals from vulnerable contexts being involved.

The only ethical risk pertaining the research was to ensure confidentiality of the information shared by the participants during the research process. Housing, especially in the public sector is known to be a controversial topic and so inputs from stakeholders in this area could be confidential and sensitive. Furthermore, research participants could have felt uneasy sharing personal opinions and judgements regarding their experience with working with large clients or organisations.

In order to proactively address ethical implications as such, the standard protocols for ethical considerations were followed during data collection methods. Research participations were informed beforehand about the research questions, approach and protocols that would be followed during data collection and confidentiality in the storage and use of research data.

All participants were asked for permission to participate in the research beforehand, by signing an informed consent form as included in Appendix B. The Informed consent form clearly stipulated the right of participants to withdraw from the study at any time, and outlined the steps that were to be followed to ensure confidentiality. The original data recorded was securely stored to ensure research participants can verify the content of this study upon request.

3.8 Research limitations

This research was conducted in the midst of a global pandemic that required adjustments and alterations to certain research methods and research objectives of my studies. An unforeseen circumstance caused by the Covid-19 pandemic was the change in my research objective and topic. Prior to the pandemic, my research study was focused solely on looking at a soft-regulatory policy that was planned to be implemented in 2021 aiming at implementing spatial equality through design guidelines. Due to the pandemic, progress on the policy was delayed and I was therefore unable to focus my study on a stagnant policy alone. I therefore resorted to look at the GBCSA guidelines and the process involved with the establishment and promotion of its tools in the green building sector. However, due to this unexpected change in topic, some of the semi-structured interviews that were conducted in the early stages were mainly focused on the spatial equality policy. Since the policy and the GBCSA guidelines shared fundamental elements toward sustainability and aimed at implementing change through soft regulations, interviews conducted before the change in research focus were still beneficial to the overall research journey. Due to the pandemic, a nation-wide lockdown declared from 30 March 2020 for an

indefinite period at the time, I was required to adjust the research strategies and collect data using online platforms to avoid making any participants at risk. The iterative nature of the study embedded in grounded theory assisted me to cope with the changes caused by the pandemic, and instead of starting from scratch or making major changes, I was able to pick up the pieces and build on the research study for a final research approach.

3.9 Chapter summary

Overall, the research approach, methods of data collection and analysis, and the iterative methodological process were essential to ensure consistency and reliability of my findings. The qualitative data approach assisted with fully grasping the complexities and underlying themes and findings of this research topic, in such a dynamic research context such as sustainable housing. Being embedded in grounded theory methodology brought an element of flexibility and resilience to the research study even when faced with challenges from the pandemic that required alterations to the research topic and approach. The semi-structured interviews with participants helped unpack underlying themes and agendas through a constructivist approach and gave a detailed understanding of the GBCSA as the research context of analysis. Member check-ins were conducted to further validate and analyse the primary data collected. Secondary data such as reports, articles and policy frameworks, along with the GBCSA Green Star rating tools were consulted as the third method of data collection. The data from the interviews, member check-ins and secondary data analysis were coded and analytically combined using a thematic coding program Atlas.ti and data display analysis methods, to establish commonalities and patterns that address the research objectives.

Researcher positionality and reflexivity are both components that were recognised and ensured that I was mindful of potential researcher bias in my research approach. The data was also further validated through data triangulation. All mandatory ethical considerations were followed to ensure the integrity and validity of the research data and process. Overall, the research approach, methodology and methods allowed me to understand the current context of housing and sustainability initiatives within the housing sector of South Africa. The iterative nature of the research touched on various underlying topics that need further or deeper investigation, which could not be achieved through semi-structure interviews or content analysis alone.

Chapter 4: Research Findings

4.1 Introduction

The following chapter provides an overview of the findings of the research. The findings are categorised into themes and sub-themes that emerged from the iterative data analysis process. These themes are grouped according to the research objectives addressed in Chapter 1 and are expanded on by using direct quotes from the interviews or literature that was consulted during the research to ensure legitimacy and bring depth to the findings explained below. I firstly look into the establishment of the GBCSA to understand the methods used to develop the Green building certification tools and how the GBCSA framed its approach to promote change within the building industry. Secondly, I then look into how the certification tools and the institution of the GBCSA was received by both the public and private sector practitioners within the housing industry. Lastly, I then discuss an unexpected finding that was evident through the study – the role of a crisis and how the response to a crisis is an unexpected enabler to accelerate change and sustainability within an industry. I then conclude the chapter by highlighting the key findings of this study that held the most impact.

4.2 The establishment of the Green Building Council in South Africa

To comprehend the functioning of the Green Building Council in South Africa (GBCSA), it is important to first understand how it came to be and what factors influenced its formation. The GBCSA, an independent, non-profit organisation (NPO) that oversees and regulates design companies, green building consultants, and housing professionals to all work together in developing sustainable infrastructure, has seen a significant influence in the growth of the South African green building sector (GBCSA, 2021).

This section takes a deeper look into how the GBCSA came to exist by firstly recognizing the heavy input from international experience and industry experts that influenced its establishment. Secondly I explore what the GBCSA identified as the crucial problem and how they framed the problem for the industry to tackle. I then discuss the methods used by the GBCSA to tackle the problem in a tangible way, to then lastly look into ways of how the GBCSA motivated the industry to be a part of the change the GBCSA advocated for.

4.2.1 *Built up from industry experience and experts*

The establishment of the GBCSA heavily depended on two bodies of knowledge; the experience and practice from other GBCs (Green Building Councils) across the globe and the expertise and skills of professionals within our own context. The GBCSA was formed in 2007 and at the time it was one of

the first Green Building Councils to be launched in Africa, classifying itself as a pioneer in green buildings for the African continent (World Green Building Council, 2016). Due to the lack of experience and examples within the African context, the GBCSA looked at international precedents of reputable GBCs, such as USA and Australia, for guidance and direction. The GBCSA also utilized the lush experts and capabilities within our own South African built environment for advice and assistance.

4.2.1.1 Adopted from International Precedents

The GBCSA heavily relied on certification tools and institutions that were already well established and used in international contexts. Initial guidance was sought from the United States of America (USA), as at the time the United States (US) GBC was well established and integrated seamlessly into the context of its built environment (World Green Building Council, 2016). The US GBC was also one of the first organizations to successfully implement and roll out the Leadership in Energy and Environmental Design (LEED) certification tool that was commonly used by built environment practitioners across the country (McLennan & Berkebile, 2003). The LEED certification tool was also introduced in South Africa, however because it was designed for a different setting, it was not as feasible or practicable for the South African context. Reflecting on this participant C1, a green building consultant with international experience who played a key role in establishing stake-holder engagements for the GBCSA commented that, *“We learnt a lot from international examples yes, but we had to develop our own sort of modelling protocol and performance standard that best suited our industry.”*

The GBCSA then turned to guidance from the certification tool implemented by the Green Building Council of Australia, to critically analyse and score sustainable approaches on building techniques, materials and energy efficiency (About us GBCSA, 2021). Even though Australia has a very different urban fabric and background to our African context, at the time of the GBCSA’s establishment, Australia had the most similar context to South Africa from all the other international precedents. Their tool was adapted and modified to form the Green Star SA rating tools, which are now widely used throughout South Africa. Participant C2, a well renowned engineer and prominent figure in implementing and developing the Green Star SA tool for the GBCSA, further commented that, *“while we got a lot of backing and information from the Australians and American examples, we treated it as an experiment, making us test and model our tools vigorously in our own context multiple times before the roll out.”*

4.2.1.2 Heavily relied on South African industry experts

Industry involvement was crucial in the establishment of the GBCSA. Industry experts with various skills and deep rooted knowledge of the South African built environment played a key role in the development and establishment of the GBCSA and its tools. Participant C2, an influential figure in the

establishment of the network and relationship between industry and the GBCSA, highlights the significance of this, particularly in the early phases: *“Our core stakeholder working groups from the beginning was about 25 to 30 people with different skill sets and experiences...It was crucial that we had them all on board from the beginning.”*

Industry experts and their input is crucial in the establishment of any institution that will demand change, especially in an untested context such as South Africa. Participant C3, a former employee of the GBCSA and an industry expert himself, further explains the vital role of industry input stating that:

“When coming up with standards for the tool, it's not just a theoretical exercise that somebody thought up of or developed from all sorts of desktop research etc. This method will fail because you haven't had application. You haven't had people in the Industry saying well this isn't going to work or why haven't you thought about this instead” (Participant C3).

Furthermore, the GBCSA incorporated the necessity for a designated green building consultant to be a member of the building team that takes decisions, formulates designs, and oversees the construction process for all projects. The team consists of the usual built environment practitioners such as the Architect, Engineer and Quantity Surveyors etc. But the Green Star SA certification tool made it a requirement that one of the team members is *also* an Accredited Professional (AP) linked to the GBCSA. Participant U2, a green building consultant currently involved in various Green Star SA projects, agrees that *“it is important to have green building consultants within the team and not as an external party... a team member part of the building process from day one itself.”* The role of the AP or green building consultant is to advice on the possible, best suited sustainable option or to educate the rest of the team on the matter. It is clear on the importance to build a strong and sustainable relationship with industry from the beginning, when promoting change.

4.2.2 Positioning the initiative for industry involvement

Unpacking how the initiative was positioned and communicated to the industry, sheds light on why the sector reacted in the way it did to the need for industry change. GBCs across the globe have positioned “building green as an opportunity to use resources efficiently and address climate change while creating healthier and more productive environments for people and communities” (Hodson & Marvin, 2010). As such, in South Africa, the GBCSA positioned the green building movement as an opportunity for doing things differently in tackling both the need for housing and the need to meet sustainable needs. This section below outlines how the GBCSA framed the problem to gain industry involvement. First, I unpack what the GBCSA identified as an urgent problem or crisis, to then determine who they portrayed is to blame and must take action for the crisis at hand.

4.2.2.1 *An opportunity to do things differently*

The GBCSA recognised the opportunity to establish an independent governing institution to monitor and promote sustainable building. The South African built environment has practiced various green building initiatives and many individual projects have strived for sustainability. The GBCSA, on the other hand, noticed a lack of regulation and direction for initiatives that try to implement innovative sustainable approaches in a highly rigid and difficult field. As participant C4, a principal green building consultant leading a well-established consultancy firm, said, *“there was a vacuum in co-ordinating and monitoring sustainability in our context”* - which the GBCSA identified as the major problem that needs to be addressed.

The need for an independent establishment integrated within industry deemed crucial to challenge the normal way of practice. Hower (2016) explains that *“sustainability encompasses the entire supply chain of a business, requiring accountability from the primary level, through to the suppliers, all the way to the retailers ... and requires a company to look internally and externally to understand the impact of the change”*(Hower, 2016:34). This is, if any meaningful change in South Africa's built environment is to occur, it will necessitate an institutional shift including a variety of stakeholders and participants all contributing their best efforts to tackling sustainability together. Participant U3, an established built environment practitioner, expressed that: *“We needed someone in charge, someone to really shake things up...someone from the outside to look not just at our buildings, but the people who make it and end up using it.”* The GBCSA's diagnostic approach is best explained in the companies motto that is to *“provide the tools, training, knowledge, connections and networks to promote green building practices across the country and build a national movement that will change the way the country is built”* (About us GBCSA, 2021).

4.2.2.2 *Who should take responsibility?*

Both public and private sector professionals voiced a blaming mentality when discussing who's responsibility it is to implement sustainability in the built environment. Both sides identified the lack of sustainable buildings as a result of the other sector not contributing enough. Because of the absence of institutional support and change required to support the private sector, the private sector views sustainable housing as the duty of the public sector. Participant U2, a built environment practitioner experienced in the private sector mentions that, *“it would help if law or policymakers provide more of an enabling environment rather than a restrictive one.”* Participant U3 adds on to this notion by stating that *“most private sector developers don't have much confidence in working with the public sector on such projects, unless there is some reassuring method of implementation from policies or incentives.”*

The public sector on the other hand sees the private sector as more equipped and risk free to tackle sustainable initiatives. Participant P4 a public sector housing professional explains how, “[the] private sector is in a better position to tackle sustainability as they can afford to take risks. The private sector only have to make their big clients happy, the public sector have to make the larger vulnerable groups of people happy.” Likewise, participant P3 a public sector policy writing practitioner stated that: “The drive [for sustainability] is more in the private sector compared to the public sector because of the profit driven mentality in housing. One yields less profit when dealing with vulnerable communities hence mostly only private developers think about sustainable options for wealthy income groups.”

The GBCSA stated emphatically that no one is to blame for the situation, but that everyone is accountable for resolving it. The GBCSA framed the problem as a responsibility for all to address, private and public practitioners. The GBCSA prioritized multi-stakeholder involvement for effective change, and took on a role as an independent NPO with the responsibility to provide a platform for collaboration and partnerships between both sectors. Participant C2, a principal green building consultant involved in the establishment of the GBCSA in its initial stages recalls that: “As we (GBCSA) were an NPO, we could challenge everything about how things were designed and built at the time. We challenged different actors from every field to tackle things differently and now these changes have even been adopted into many government policies and businesses.”

4.2.3 Approach to solve the problem

The GBCSA developed and implemented certification tools to accelerate the green building movement strategically. The GBCSA developed the Green Star SA tools with “a team of industry experts working in collaboration with industry bodies, government departments and professionals to develop market-based green solutions for the South African building industry” (Wecanchange, 2018). The Green Star SA rating tools were adopted from the Australian certification tools, but modified to be approachable for the South African built environment (World GBC, 2017). The GBCSA states that through the certification process, they wish to “establish a common language and best practice standard of measurement of green buildings in the built environment” (GBCSA, 2018).

Gradually, the tool was adopted into the industry to an extent where certain specifications from the certification tool have now been incorporated into building regulations such as South African National Standards (SANS) and national policies. The section speaks to how the GBCSA focused on making the tool an output focused tool specifically designed to maintain a balance in being prescriptive and ambiguous, to get industry involvement and support.

4.2.3.1 *Output focused tool*

The GBCSA developed a tool that not only provided guidelines for how to tackle sustainability, but rewarded each attempt. The Green Star rating tools were purely output focused, where points were awarded to the number of sustainability credits a project tackles. As participant U4, a green building consultant and environmentalist who has had extensive experience using the tool explains: *“You are ultimately rated with the tool depending on your output a 4 star or 5 or even 6. You have to meet a certain number of standard’s – which is clearly laid out in the tool, in order to get to that star rating.”* The tool is designed in a way that if a project meets the basic minimum requirements, it is awarded with a 3 or 4 ‘star rating’ that reflects the performance of the building in terms of sustainability. This further emphasized the output focus nature of the tool to encourage users to at least experiment with the bare minimum, and still end up with a star rated project.

Star rating made it easy for investors and clients to identify sustainable green building projects. Participant P3, a public sector practitioner with extensive experience in using the tools, explains how the star ratings were beneficial and created a demand for Green Star rated projects:

“If someone says I’m building a five-star building, most people won’t necessarily question how or what you did specifically to get to the five-star. But from an investor’s perspective, it’s all about showing what you achieved as your rating and aiming for better the next time” (Participant P3).

The certification tool was made up of various themes of sustainability, which the users could then decide on which theme to tackle or ignore. Themes such as transport, energy, materials and building management were all categories part of the tool that users could choose to attempt, according to their needs or where their expertise lie. Participant U5, an engineer and green building consultant who has been part of Green Star rated project teams for various projects explains: *“When a project starts, we all sit down with the tool and design brief to see how many points we can get in order to tackle a four star (bare minimum) rated building. The project team can then know where (as in which categories) need focus to get the easy point.”* Therefore, the output focused layout of the tool allows for the user to experiment but also channel their expertise on themes that they feel most confident with to get the greatest number of points from.

4.2.3.2 *Easy to follow prescriptive guidelines*

The tool was created by the GBCSA to provide clear guidance on the compliance criteria for each credit. The tool is structured in a way to provide guidelines on how best to tackle each credit and depending on the credit, these guidelines are either prescriptive to the point of giving technical details, or having broader recommendations.

Figure 7 shows a snapshot of the tool layout, displaying what a prescriptive credit would entail and how specific the compliance requirements can be. A former member of the GBCSA who was heavily involved with the formulation of the energy and water efficiency credits part of the tool, participant C2 mentions that: *“at times you also need prescriptive points that must be followed for performance-based standards to ensure the credit is met effectively.”*

Credit Criteria Sub-Paths	Compliance Requirements
<p>24B.4 - Stormwater Quality Up to one point is available where receiving water quality is protected by limiting the quantity of key pollutants discharged in stormwater. This is based on a percentage reduction of sediment, phosphorus, nitrogen, and litter compared to untreated runoff.</p> <ul style="list-style-type: none"> - 0.5 points for sediment and litter in project runoff when compared to untreated runoff. - 0.5 points for phosphorus and nitrogen in project runoff when compared to untreated runoff. 	<p>24B.4 Stormwater Quality Up to one (1) point is awarded where the quantity of key pollutants discharged in site stormwater is limited based on the percentage reduction of pollutants, when compared to untreated runoff in accordance with the following requirements.</p> <p>24B.4.1 The following minimum reduction in total pollutant load from the developed part of the project site must be achieved, when compared to untreated stormwater runoff: For 0.5 points: 80% reduction in total suspended solids; and 90% reduction in gross pollutants</p>

Figure 7: Image illustrating a section of the certification tool to depict the prescriptive nature of the tool

The prescriptive nature of the tool had me questioning how the tool was received and used by designers and clients who have their own agendas and designs for their projects. Participant U1, a built environment practitioner that has used the Green Star rating tool in various successful projects reflects on the use of the tools as, *“not hampering but enhancing the initial design we came up with.”* The tools guided projects on how to tackle sustainability through design and according to Participant U1 *“[the tool] gave key pointers to where small tweaks can be made to make effective changes.”* Participant U3, who started off as an architect for various Green Star rating projects to now practice as a Green Star rating AP, agrees that, *“the tool consisted of prescriptive guidelines to show us what the bare minimum is ... and that pushed us to go the extra mile and achieve a little bit more if we can.”*

4.2.3.3 Room for innovation

The prescriptive notion of the tool is balanced by the flexibility of the tool and the innovation points. The flexible nature of the tool is best explained by Participant C3, a green building consultant involved in the adaptation of the tool for the South African building sector:

“what we discovered is that the more you try to be prescriptive, industry pushes back and says, we don't do it like that because we're used to doing it another way... hence (with the tool) the users are given the option to choose which credits they want to tackle and which ones they are not comfortable with” (Participant C3).

The users of the tool have the choice to address the credits or themes they deem as important or easiest for them to tackle. The tool is also structured in a way to allow the freedom to either aim for the bare

minimum requirements for each credit or to tackle the challenge in innovative ways. Certain credits include extra points and motivate innovative responses as shown below in Figure 8. Participant U4, an engineer who has worked closely with projects that tackle Green Star rating certification mentions that working with the tool “*left enough room for the designers to tackle the challenges in their own way, based on what skill sets and resources they have and what they feel comfortable enough to tackle.*”



Figure 8: Image illustrating a section of the Certification tool that addresses the Innovation credit

4.2.4 Ways of motivating industry professionals to engage

It is clear that industry engagement and participation is critical at all levels of implementing and enforcing new sustainability guidelines. The GBCSA therefore leaned on methods of motivating and prompting the industry to engage in the development, use and promotion of the green building movement. The following section speaks to how the GBCSA took on the role of being advocates for the green building movement to gain credibility within the industry and spread awareness on the approach they took to address the issue.

4.2.4.1 Advocacy

The GBCSA put a lot of effort into advocacy and supporting the need for a green building movement. Participant P4 a public sector housing practitioner who has been working closely with the GBCSA notes that: “*The GBCSA became a well-known establishment in the green building industry that represented a good cause. Any strategies they implemented created a huge impact in the housing industry.*” The GBCSA openly publicized their goals to drive for sustainable change and promoted a strong message about their role in pushing for the green building movement. The GBCSA not only stood for a noble motive but provided the opportunity for others to address sustainability as well, by engaging with the GBCSA. Participant P4 continues to say that the advocacy role of the GBCSA was evident when, “*companies and architecture firms all wanted to participate in this change, as any association with the GBCSA was seen as an action towards sustainability.*”

The GBCSA's position as change advocates was greatly aided by the context and emphasis and urgency on sustainability at the time. Participant U3, a green building consultant involved in many large-scale Green Star rated projects goes on to say that: *“developers are pushed into a corner by many of the activists group that question them about sustainability and spatial justice. So, they [the developers] face the pressure to answer them when they haven't made any provisions to tackle these issues.”* Hence association and involvement with a sustainability advocate such as the GBCSA, served very beneficial for many housing practitioners. Participant C1, a founding member of the GBCSA further adds that *“a lot of big clients such as oil companies, have got the money and they will try and find new ways to offset their carbon footprints somehow, even if it costs them.”*

4.2.4.2 Awareness

The GBCSA promoted awareness of the tool's importance and effectiveness by conducting small but frequent workshops and big but annual conferences. A founding member of the GBCSA, Participant C2, who was heavily involved in the management of stakeholders and industry relations mentions that: *“if we are to push for change or innovation, we also have to ensure you have access to the skills, materials – which is why we offered workshops for any individual who wishes to cover all the basics of the tools in and out.”* The workshops not only equipped practitioners to use the tool effectively, but also built up a network of practitioners associated with the GBCSA and its goals. Participant U3 an engineer recalls the benefits of attending such workshops as they, *“thought it would be a difficult or too technical, but it was quite the opposite -I was motivated to start the certification process on my projects. It also helped with getting linked to other green building consultants that were working on similar projects as myself.”*

The annual conferences organised by the GBCSA across the country helped to strengthen the network. These conferences were extremely helpful in boosting the green building sector by celebrating the success of the output-focused tool, which demonstrated its viability and sparked interest and an appetite for such a tool in the industry. Participant C2 goes on to explain the purpose of such conferences are to:

“bring industry practitioners all under one roof to celebrate the impacts of the tools and explore areas of improvement. It was an opportunity to gain practitioner interest in using the tool by showcasing the projects that successfully implemented it.” Practitioners, clients and companies were not only being commended for the use of the tools but were also encouraged to take it a step further the next time they used the tool. The conferences accelerated the driven nature of the green building sector as participant C1 notes how *“outstanding uses of the tools were celebrated and commended - this was creating this competitive nature within industry right below our nose.”*

4.2.4.3 Competitive advantage

The nature of the output focused tool created a healthy competitive culture in the green building sector. The GBCSA commended projects that attempted any certification tool, which as a result, portrayed Green Star rated buildings as very attractive and rewarding. As Participant C2, a green building consultant who has been active in the industry from the founding of the GBCSA describes that: “...*from an investment perspective, Green rated buildings feature very highly and contribute towards the ESG (Environmental, Social and Governance) rating of a portfolio and any spendable.*” These benefits started to create demand and as participant U3 says “*The demand now started to come from the client as a requirement to differentiate themselves from other companies and portfolios for competitive advantage.*”

The GBCSA utilized and nurtured the friendly competitive nature within the housing industry, to illicit further industry engagement and encourage the use of the tool. Participant C1, a green building consultant involved from the early stages of establishing the GBCSA recalls the competitive nature that was forming within the industry: “If you are a first in the industry, developers love that, as they need that mileage that helps with sales. A first in something like a Green Star rated building would really be a demonstration of your market-leading ability.”

The competitive nature of the industry was highly beneficial for promoting and endorsing the goals and tools of the GBCSA. As Participant C2, a former member of the GBCSA that worked closely with industry and stake holder managements recalls how, “the people who wanted to do the pilot projects [first to be certified] were the industry leaders, willing to try out innovative methods. And so it's key in finding those people and bringing them on board from the start, to work closely and do the first couple of projects successfully with them.”

4.3 Barriers that hinder the adoption of the GBCSA guidelines

In this section, I discuss the obstacles and challenges that the built environment industry faces in adopting sustainability principles such as the GBCSA tools. Many interview participants voiced the difficulties they faced in the housing sector, to assist with unpacking the complexities of the industry that can inform any future industry engagement. Participant C1, a green building consultant that was involved in the early implementation stages of the GBCSA recalls that “*the reluctance and lack of participation of a lot of the professionals in the industry is to be considered as a part of implementation. It gave us the clues on how to specifically project our goal and motivate them for participation.*” Although building professionals value the goals and purpose of the GBCSA tools, their adoption has been hindered by various factors, namely a perceived lack of urgency and market readiness, misperception of the tool as being ornamental and not effective and the fear of taking risks and avoiding failure.

4.3.1 *Lack of market readiness – Is the issue urgent?*

The lack of urgency in addressing sustainable measures was evident during the early implementation stages of the GBCSA and its guidelines. Sustainability was not seen as a priority by the industry, which indicates a lack of awareness of sustainability issues and a market readiness to address them. On the one hand, sustainability was not perceived as an urgent matter. On the other hand, priority was given to meeting housing demands in the fastest and cheapest way possible.

4.3.1.1 *Not a ‘hot topic’*

The industry did not perceive sustainability as a crisis that needed to be urgently addressed and failed to connect sustainability initiatives with other crises taking place at the time – such as the energy crisis or the housing delivery crisis. Participant C1, a green building consultant involved in the establishment of the GBCSA disclosed that: *“back when we introduced the tools, Green Buildings were not on everyone’s mind in those days ... the hot topic at the time was how to deal with the energy crisis and people couldn’t see the link between that and sustainability.”* Similarly, participant C3 a green building consultant who was involved in the trial phases of the Green Star rating tools, revealed that *“the Green Building Council had to do a lot of work in terms of advocacy by putting energy efficiency on the radar for many.”* Despite the ESKOM blackout crisis in 2008 and the perception of energy as a ‘hot topic’ at the time, practitioners did not associate mitigating the energy crisis with the GBCSA guidelines, hence did not find the tools as useful at the time.

4.3.1.2 *Meeting demand over need*

The housing Industry also prioritized housing delivery numbers over the integration of sustainability standards. The other ‘hot topic’ of the housing industry was to meet the unprecedented rate of demand. Participant P1, a public sector professional in the housing industry emphasized this by voicing the fact that, *“People need a roof over their head first and foremost, that is what we focus on first”*. Meeting the immediate demand continues to be the main objective for the housing industry as explained by participant P2, who is also involved in the public housing sector - *“we deal with a crisis as they come, and right now, we have growing numbers of homeless individuals. What can we do first to help them?”*

Housing demand as a result, is continued to be met in the fastest and cheapest way possible. The exponential rate of demand compels practitioners to stick to their familiar methods and ensure fastest delivery, rather than spend time and resources to investigate alternative building methods. Participant P3, an experienced practitioner in the public housing sector, who has also recently worked with Green Star related projects, said that for any change to happen, *“one must try to entice and create an appetite for builders to step away from their normal methods of housing delivery, but also leave them with a guarantee that housing demand will be met.”*

4.3.2 *Lack of awareness - Is it essential?*

GBCSA certification tools were perceived as futile by various practitioners in the industry. Even with constant industry collaboration and constant reworking of the certification tools, certain misperceptions hindered the adoption of the tool in the industry. Practitioners viewed the certification tools more as an ornamental add on to buildings rather than a tool to use for efficient and sustainable practice. There was also hesitance from industry to employ the tool in projects due to the concept of it being foreign and unapproachable tool for the South African context. And lastly an unforeseen circumstance that was noted within the industry was how a bare minimum culture strengthened with the adoption of the tool, due to the checklist manner/design of the tool itself.

4.3.2.1 *Ornamental vs practical*

The tool did not address issues such as meeting housing needs urgently, but tackled sustainable long term issues that many practitioners deemed time consuming and failed to see the importance of initially. One of the misconceptions that was evident in the industry is the notion that certification tools were for ornamental purposes and were not addressing urgent matters. As one of the founding members of the GBCSA and the development of the Green Star rating tools, participant C1 recalls: “once a client even asked me why should we have green buildings when it doesn't actually buy me any rebates from the municipality ... they refused to see the long term benefits.” Additionally, participant C4, an engineer and green building consultant who worked on the energy and water saving credits of the tool, admits: “many were convinced that energy and water consumption are not your biggest costs in your building so why even tackle it?”

The process of certification itself was misperceived as a tedious task and an unnecessary expense to various practitioners. As participant U5, a town planner who has worked with the certification tool in certain projects said that, “many colleagues of mine gave me the impression that sustainable homes can only be achieved by the wealthy and are meant for the wealthy for competitive advantage.” The misconception of an ornamental tool instead of a practical guidelines for sustainable measures, was also prevalent with public sector practitioners. Participant P4, a public sector city planning practitioner expresses the concern: “the certification tools are just satisfying the competitive need for clients to differentiate their portfolio. There’s more focus in making your building more attractive than sustainable as projects use every opportunity to make it really obvious and show that you are doing better than your next door building sustainably speaking.” The ornamental nature makes it even more difficult to implement sustainability requirements in sectors with low resources that deal with disadvantaged groups. For example, in the public housing sector, where housing supply takes precedence, any cost or time-consuming duties such as sustainability certification are seen as an extra cost rather than a requirement.

4.3.2.2 *Experimental conduct*

The experimental conduct of the GBCSA was not well received by all in the industry as practitioners were cautious of certification tools that heavily depended on international precedence. Participant U4, being a user hesitant to use the certification tools in the implementation phase voices this concern; *“How will you actually make it successful if we are looking at examples with a complete different context to ours? We need to cater for people’s needs for here and now.”* The certification tools were the first of its kind to be introduced in an African context. Hence the efficiency and urgency of such a tool was undermined due to the lack of supporting examples in similar contexts.

The GBCSA set a strong notion of experimenting and testing out the tools to tailor make the credits within the tool, suitable for the South African context. However industry was not accommodative of such experimentation. Participant C2 recalls the struggles faced when trying to gain industry participation for such an alien and new initiative; *“it was really around how do we make the business case to the industry to adapt this tool. Its new, it’s scary and its different...but it needs to be done.”*

The GBCSA tested the tool on large scale projects in the industry who had the resources and freedom to experiment. However an unforeseen circumstance of such portrayed the tool to be unapproachable and precarious for the rest of the housing industry. Participant U1, an early user of the Green Star rating tools admits how, *“If the testing of the tools were maybe done on a broader scale with smaller projects around the country, maybe it wouldn’t be considered so much as an experiment and buy In from stakeholders would have been a lot easier.”*

4.3.2.3 *Achieve the bare minimum culture*

The culture of achieving the bare minimum to get the job done is unfortunately a common trait in the industry, especially when dealing with vulnerable or low income yielding contexts. The built environment industry as mentioned previously, strives to get the job done in the fastest and cheapest way possible. Anything that demands additional expense or time is not deemed urgent. Participant U2 further explains this by stating that *“when it comes to budget constraints and also just the mindset of many of us in our professional industry, we aim to just achieve the basics or bare minimum because that’s the safe ground.”* The danger and hinderance of such an ethos is explained by Participant C4 who was involved in the promotion of the rating tools; *“there needs to be a shift in mindset first. If there’s still resistance even on a subconscious level, things get difficult because people will just find loopholes to reach the outcome in the easiest way possible. This hinders any effective change.”*

The GBCSA further encouraged this achieve the bare minimum culture, in the format and checklist approach of the certification tools. A former GBCSA member involved in the development of the tool, participant C2 recalls that *“we often saw that the tools were used in a Tick boxy and checklist manner.”*

They got used to trying to tick the boxes and meet the minimum requirements.” This comes as one of the downfalls for an output focused tool with prescriptive guidelines as participant C2 continues to say that “ ... *the last thing we want is for designers to not think like designers anymore. Then the project fails because they haven't thought about the guidelines as a designer, but as a client who just needs the job done.*” Adding to this, participant U5, an architect who has worked with various certification projects recalls “*we could have definitely pushed for a higher rating but it really comes down to the client having the appetite to push for it. It's difficult to motivate for green sustainable aspects in a design without client buy-in.*”

4.3.3 Risk vs reward - Is it worth it?

The fear of using new and untested building standards was a factor that hindered industry participation in sustainability initiatives. This included the fear of failure linked to changing familiar methods of housing delivery or building methods within the industry. The fear was compounded by the industry’s short-sightedness that focused on short term goals such as faster housing delivery versus long term resilient goals such as building sustainable communities. This short-sightedness within the industry was further enhanced due to the inability for housing practitioners to see the long term implications of their actions after the houses were built, which is further explained in the section below.

4.3.3.1 Fear of failure

The built environment industry is a very complex and dynamic industry with pressure placed on taking risks and avoiding failure. Participant U1 an experienced practitioner in the industry says, “projects come and go. It’s hard to keep up with the current trends or crisis that the industry is dealing with at the time. The longevity of a project is highly sensitive.” The pressure is increased for sectors within the industry that deals with vulnerable communities or public needs, in comparison to projects for clients with more resources. The public housing industry is an extremely contested and risky space to work in. Practitioners fear risk taking. As participant P4 explains from experience working within the public housing sector, “We look at numbers, time, and fastest delivery of houses. We just cannot afford to change the way things are done without being sure. These are people’s houses at risk, not a fancy mall or office block.”

The high risk factor hinders industry engagement in sustainable initiatives or any form of experimentation with sustainable guidelines. The common question: “why change the ways of practice that industry is familiar with?” was raised by participant U4, a private housing industry professional. Participant U4 goes on to say, “the biggest fear in the housing industry is change. We are barely meeting demand, so anything that will slow this down is a risk not worth taking.” Certification requires additional time and resources as participant P3 a public sector practitioner further explains “the

accreditation process can get very tiresome. You have to be familiar with the tools, know the Ins and Outs of the certification process – which all takes time that we just don't have.”

4.3.3.2 *Haste vs resilience*

In the housing sector specifically, the aim is to build as many houses as possible, rather than providing homes for the future. Lack of practitioner motivation in initiatives that demand change is a result of various things. Participant C2 explains how one of the main reasons is the short sightedness of the industry: *“How do you enforce something on developers when the benefits of it are something that happens during occupation or use of the building. Which is a stage when developers are done with the project and walk away, so they don't get to see the benefits of such.”*

Practitioners were unable to see the long term implications of their methods of construction and housing delivery, especially when sustainable measures if implemented, only has beneficial outcomes after occupation of the building. Participant P4, a public sector housing practitioner goes on to admit that *“It just seemed like too much effort to get the bare minimum requirements done. Should we focus on getting a roof over their head first or try to focus on reducing their energy and water costs, which we only see happening much later?”*

Awareness and promotion of the tool and its benefits had to be strategic in industries such as housing with limited flexibility in the normal way of practice. The GBCSA attempted to work around such hindering factors. As participant C2 a green building consultant heavily involved in industry engagement recalls: *“there has to be very clear benefits which can easily be communicated to the developers such as income tax incentives etc. We can't only promote long term benefits that they don't even see, if any change is to happen in the way we roll out housing projects”*. Incentives proved to be very beneficial to counteract the hindering elements but Participant P3 speaks on behalf of the public housing sector by stating:

“You can't make everyone happy. Stakeholders can be very critical when working with such certification tools because they are the ones who have to live with it ... Experimenting on such tools with vulnerable communities is out of the question. We already face constraints to provide to their demand and what real benefits will we get out of it?” (Participant P3).

4.4 Unexpected enabler

The water and energy crisis that took place in the South African context accelerated industry participation in sustainable measures. The GBCSA's strategic implementation approach in encouraging industry involvement and adoption of the tools into the industry faced many challenges as explained in section 4.3. However the unexpected element that fast-tracked industry involvement and use of the tools

was as a result of a crisis. Participant C2, a green building consultant involved in the implementation of the tools recalls how “... the ESKOM crisis back in 2008 helped us a lot, especially when there were the blackouts and climate change discussion that were the hot topic at the time. Then came the water crisis in Cape Town and again the urgency of the tool became more obvious to clients.”

4.4.1 Crisis driven response

The GBCSA used the crisis as an opportunity to counteract the barriers that hindered industry involvement and the adoption and their tools. The GBCSA was confronted with a closed loop of impediments, as shown in Figure 9 below. The lack of awareness on sustainable measures led to the blurred urgency on the matter and misconceptions on the effectiveness of the tools and initiatives. As a result, there is a general lack of market readiness to embrace and implement such long-term solutions. The lack of market preparation exacerbated variables such as misunderstandings and a hazy sense of urgency, leading to an even greater lack of awareness.

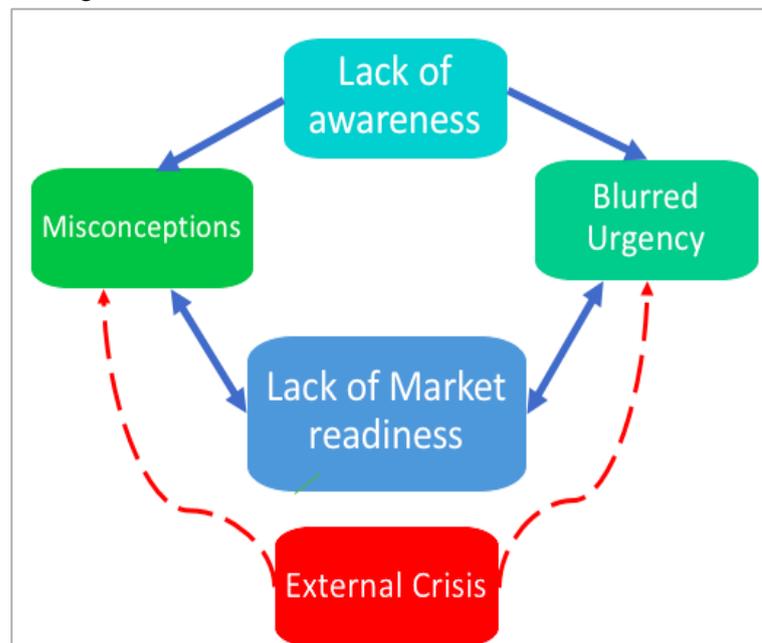


Figure 9 – Diagram illustrating an external crisis disrupting the closed loop structure

The closed loop nature was disturbed when a sudden crisis hit the context and altered the urgency and misconceptions on the matter. The GBCSA went in with a goal to then build up awareness on the crisis and the response they were undertaking to deal with the crisis. An unexpected crisis and the methods taken to include the crisis in the promotion of the tool, broke the closed loop and increased an overall market readiness within the industry. Participant C2 continues to recall how “We [the GBCSA] went to industry with the approach of it’s the right thing to do for our context at the time, which got a lot of people on board with us.”

4.4.2 Covid-19 crisis implications

Participants also discussed how we are now in the midst of a global crisis, the pandemic, which can also hasten the implementation of more sustainable initiatives. Participant P4, a housing practitioner reflects on how *“our government’s response to the pandemic and the actions towards city resilience, raised more urgency on the deficiency and urgency for sustainable initiatives across the country.”* A private sector developer, participant U4, adds to this stating that *“Covid-19 created a new lifestyle unintentionally. With lockdown restrictions we were forced to now live locally, shop locally, work remotely. This increases the urgency of sustainable neighbourhoods that can provide for this new local living lifestyle of less commuting and more walking and safer spaces.”*

Sustainable homes and resilient communities can be achieved through initiatives such as the GBCSA rating tools or policies and strategies that explore holistic approaches of sustainable living. A policy as such includes the inclusionary housing policy that looks into bringing homes closer to economic opportunities.

4.5 Chapter summary

In this chapter, I presented the findings and emerging factors that were evident through the research design of this thesis. Firstly I expanded on how the GBCSA was established within the green building sector by placing heavy importance on both international experience and local industry expertise. I then demonstrate how the GBCSA positioned the urgency on the need for an organisation like itself, to tackle the issue of unsustainability in the industry. Furthermore, I expand on how the GBCSA developed and promoted its tools and guidelines and how they took on a role of advocates to change, to encourage industry participation. Secondly, I explored the reaction and interpretation of the housing industry towards the establishment of the GBCSA and the implementation of its tools. I mainly focus on the hindering elements such as the lack of market readiness, awareness and the inability for industry practitioners to take risks. Lastly, I discuss an emergent factor, which is the impact and role a crisis had on the implementation and effect of the GBCSA guidelines and tools.

Chapter 5: Conclusion and Recommendations

5.1 Introduction

The central question of this research study was “what is the role of voluntary guidelines to encourage sustainable methods of building homes.” I approached this question by examining the design and implementation of the GBCSA guidelines, a soft regulation (Sahlin & Wedlin, 2008) aimed at promoting sustainable change within the housing industry.

My study was structured around three sub-questions that helped me gain a better understanding of the emergence, implementation and success of this initiative. In this chapter I discuss my findings in light of the literature discussed in Chapter 2 to answer the three research sub-questions. My first sub-question explored how the GBCSA guidelines were developed and promoted to the industry. My second sub-question focused on how the industry received, interpreted and implemented the sustainability guidelines. The third sub-question aimed to unpack the overall success of this soft regulatory approach in driving for change in the housing sector.

Overall, I found that, consistent with the literature, a soft regulatory approach relying on voluntary participation is effective in promoting new ideas, building stronger networks and developing collective accountability amongst the participants. However, encouraging a response from industry on a volunteer basis, may not be enough to push for an impactful change. It was evident that the effectiveness of soft regulations is influenced by the extent to which it provides enough specification, to enable an adequate understanding and response to the issue. Finally, I point to the role of an unexpected emergency to crystallise the understanding of the issue and accelerate industry’s involvement and commitment to change.

Following the discussion, I present practical implications and recommendations for the design guidelines aimed at promoting sustainability in the housing sector. I then discuss the limitations of this study and how future research into certain areas can assist and build this research even further. Lastly, I end of this chapter by sharing some personal reflection and experiences gained from this research journey.

5.2 Discussion

In this section below I use the literature discussed in Chapter 2 to unpack and gain key insights into my findings that answer my three research sub-questions set out in Chapter 1.

5.2.1 *How were the GBCSA guidelines developed and promoted within the housing industry?*

It was evident through the research study that through various efforts and engagements with the industry, the GBCSA sustainable guidelines and tools were successfully integrated within the housing industry and were progressively being incorporated into regulatory guidelines such as policies and building regulations. How the GBCSA induced change within the housing industry is best understood through a framing lens (Benford & Snow, 2000; Feront & Bertels, 2021). Using this lens, GBCSA can be described as the *proponent* of change. Their efforts aimed at designing and positioning the issue to encourage change within the industry (Benford & Snow, 2000). The public and private sector housing professionals, that make up the industry, are the *recipients* (Benford & Snow, 2000). They are the targeted audience of the change initiative and are responsible to implement change. How the GBCSA designed and positioned their guidelines and tools can be best understood through the three framing components: *diagnostic, prognostic and motivational components* (Benford & Snow, 2000). The proponents promoted the uptake of the Green Star rating tools through the way they defined and positioned the problem (*Diagnostic*), how they addressed the problem (*Prognostic*) and finally how they communicated the urgency of the problem and the need to adopt their solution (*Motivational component*) (Benford & Snow, 2000; Feront & Bertels, 2021).

With regards to the *diagnostic* approach, the GBCSA framed the industry's lack of sustainability as a problem resulting from poor institutional governance in monitoring and regulating sustainability initiatives. The GBCSA framed the issue as a responsibility for both the public and private sector to address together and saw the opportunity to establish itself as an independent NPO, that could collaborate with both sectors to address sustainable housing issues. The GBCSA's diagnostic approach is best explained in the organisation's motto: "The truth is that the built environment sector contributes to global warming and are we doing enough on our part to engage in sustainability on a social and environmental level, form strategic partnerships and reduce this contribution together?" (About us GBCSA, 2021). Furthermore, the proponents framed the issue as the responsibility for both the private and public sector to tackle, and encouraged engagement and collaboration on a volunteer basis, as an approach to establish networks and encourage commitment rather than enforcing partnerships.

The *prognostic* components used by the GBCSA focused on providing output focused certification tools that encouraged and rewarded participation from the industry, who could choose to engage and use the tools for any projects that they tackle. The output focused nature of the tool served beneficial, as a performance-based tool gave the users tangible results to addressing the issue that was framed by the GBCSA. The certification aspect of the tool served as a *marque* for projects that incorporated sustainability initiatives in the existing housing project. The development and content of the output focused certification tool takes on an *instrumental* approach to sustainability, where all elements are given equal importance (Hahn & Figge, 2011). Within the tool, credits that speak to economic, social

and environmental dimensions are all equally represented, in addition to credits that apply to energy, water and waste (Hahn & Figge, 2011). The principle behind this is the certification tool takes on an approach of how sustainability is all encompassing. Practitioners are encouraged to think and plan for more than just monetary gains and fulfilling the client's needs.

The GBCSA used three *motivational components* to encourage industry engagement and accelerate adoption of the certification tool (Benford & Snow, 2000; Feront & Bertels, 2021). These included a using advocacy, raising awareness and encouraging a healthy competition within the industry. All three motivational components positioned sustainability and green buildings as a valuable and necessary addition to usual building practices. The analysis of the motivational framing revealed that proponents pushed for industry engagement by establishing itself as advocates for change, that can perform independently from the public or private sector authority. The proponents raised awareness not only on by framing the issue as urgent but also through the methods they deemed effective to address the issue. And lastly, competition within the industry was stimulated by rewarding and celebrating successful housing projects within the industry. The competitive nature of the tool was very effective in getting industry giants on board with the process of change. These motivational components were evidently curated through industry engagement from the proponents, and thorough understanding of what key factors could elicit participation from the recipients.

A major factor that was evident throughout the research study was the importance and necessity of industry engagement in all stages of implementation – which the proponents (GBCSA) recognised. Industry engagement was beneficial with developing the tool by getting stakeholders input from stage one and reworking and testing the tools with focus groups that consisted of diverse industry practitioners. Frames tend to change and evolve continuously as they spread and interact with actors in the context, therefore industry engagement heavily influenced and shaped the proponent's framing process through the method of *rekeying* (Goffman, 1974, Benford & Snow, 2000). Through stakeholder engagement and focus group workshops, the GBCSA was able to understand and evaluate the dynamics of the industry and its practitioners and shape the diagnostic, prognostic and motivational components accordingly to improve its effectiveness and the adoption of the tools. Identifying and understanding the process of rekeying in this research context emphasized the importance of actor interpretation and interaction when it comes to effective change and dealing with an issue field such as sustainable housing (Feront & Bertels, 2021). Sustainability, as a contested issue in the housing sector, is likely to be reworked, reinterpreted and modified by the various stakeholders through rekeying, therefore it can be deduced that constant industry engagement is highly beneficial in all proponent framing aspects.

5.2.2 *How did the housing industry receive, interpret and implement the GBCSA sustainability guidelines and tools?*

Using an issue field lens to understand the various practitioners opinions and experiences with the GBCSA guidelines and tools, a diverse range of causes to industry resistance were noted as discussed in section 4.3 (Hoffman, 2001). These causes and industry opposition can also be understood and analysed through framing components (Purdy *et al.*, 2017). The three framing components that best summarize the hindering elements of industry engagement and drive for change are the following; *Dissociating*, *normalizing* and *moderating* conduct (Feront & Bertels, 2021).

Several recipients engaged in a dissociating manner, where the urgency and necessity of engaging and addressing the issue was questioned by the recipients (Feront & Bertels, 2021). Dissociation was mostly evident in two instances, both are a cause of industry practitioners failing to see the urgency and necessity of sustainable change due to a form of short-sightedness with regards to the bigger picture. Firstly, in the early implementation stages of the GBCSA and its tools, various practitioners did not see sustainability as a ‘hot topic’ at the time, and therefore neglected all urgency linked to the issue. Secondly, many practitioners failed to see the long-term benefits of the certification tools or the GBCSA sustainable guidelines as the benefits are only most prominent and beneficial after the occupation of the building – a time when the project team is no longer involved. The dissociating manner that challenged urgency and resulted in practitioners to not take responsibility in participating in the change or issue, is a cause of the inability to see past immediate benefits and plan for a resilient future.

Other recipients engaged in a *normalizing* manner, where practitioners interpreted implementation strategies in line with their current method of practice, but in a way that undermines the importance of the issue as they feel no major change or action from their side is required (Feront & Bertels, 2021). Normalization was mainly evident in two factors that surfaced during the research study. Firstly, normalization was present when practitioner’s misinterpreted the importance of the tool and viewed the certification tools as ornamental instead of practical. Secondly, various practitioners with limited familiarity with the GBCSA tools, would inhibit an ‘achieving the bare minimum’ culture, where practitioners do the required bare minimum stipulated in the guidelines or tools and do not push the envelope to aim for innovative methods. Both examples of normalizing manners within the housing industry are instances where industry practitioners have engaged or used the tools, but due to misinterpretation or lack of awareness, the urgency and the effort put into engaging with the change is limited.

A hindering factor that is still quite prevalent in the housing industry is the ‘not my responsibility’ mentality that showcases both dissociating and normalizing manners. Engaging with both the private and public sector housing professionals, it was evident that both sectors see sustainable housing as not their responsibility to tackle, but as the responsibility of the opposite sector. And secondly, in a

normalizing manner, some public and private housing professionals recognized sustainable housing as urgent, but it is because of the lack of initiative and major changes in the opposite sector that is hindering them to engage with change effectively. This mentality was evident in both the public and private housing sector but most especially with housing projects that dealt with vulnerable communities.

Lastly, some recipients engaged in a *moderating* manner, where practitioners defend their current methods of practice and dismiss the need for any changes to their familiar methods of housing delivery (Feront & Bertels, 2021). This frame or manner of resistance was predominantly evident in three instances. The first and foremost was the mentality of meeting housing demand over meeting housing needs, and prioritizing meeting the unprecedented rate of demand by providing houses in the fastest and cheapest way possible. The second and third instance of moderation expressed by practitioners is evident in the fear they show towards change. The fear of failure and lack of experimentation space within the housing industry was a major influence on the resistance for industry engagement with the GBCSA tools, which pushed many practitioners to stick to their familiar and safe methods of housing delivery instead of engaging with new or risky initiatives as such. This was more evident in housing projects that dealt with vulnerable communities that held a perceived higher level of risks and lack of experimentation freedom due to the extensive housing need in such a context.

5.2.3 How successful was the GBCSA's approach in driving change within the housing sector?

The soft regulatory nature of the tool, was an attempt by the proponent to encourage a non-obligatory and flexible method of change by promoting innovation and adaptability with the use of the tool (Feront & Bertels, 2021; Sahlin & Wedlin, 2008). Soft regulatory methods place responsibilities on the rule followers as well as the rule setters, which in this research context led to the GBCSA heavily depending on industry and forming focus groups with industry practitioners on a volunteer basis, who were equally responsible for the development and adoption of the tool (Sahlin & Wedlin, 2008). In my study, I found that the initiatives resulted in the creation of strong networks with the recipients who chose to associate themselves with the GBCSA.

The proponents also offered incentives in exchange for the effective use and implementation of the tools, creating a healthy competitive drive and promoting innovation within the industry. This challenged practitioners to aim higher in every project in order to be rewarded with such incentives.

The tool developed by the proponents promoted a culture of choice and rewarding compliance with the tools instead of penalizing non-compliance, to further promote a soft-regulatory approach that encourages change rather than enforce it (Sahlin & Wedlin, 2008). The voluntary nature of the initiative was beneficial in dividing the accountability amongst the participants as it was their choice to participate in the initiative, and so they are equally responsible for effective implementation of the initiative.

However, through the findings it was evident that encouraging a response from industry on a volunteer basis, may not be enough to push for an impactful change within such a complex industry with conflicting views and opinions. As established by previous research, the effectiveness of a soft regulation is heavily dependent on the balance of *specification* and *ambiguity*, to enable an adequate and mutual understanding of the issue and the best suited response to the issue (Feront & Bertels, 2021). The tools and guidelines need to be designed in a way to hold enough *ambiguity* to invite participation from the recipients and enough *specification* and guidance to regulate the use of the tool (Feront & Bertels, 2021). In my study, the ambiguity within the tool raised various confusions with regards to proper implementation methods and lack of tangible guidance for recipients to engage with. Moreover, some of the specificity and regulations within the tool on the other hand resulted in misinterpretations, portraying the tool as unachievable or ornamental rather than being useful. These factors hindered the adoption of the tool and increased industry resistance to engage with the GBCSA and their movement to sustainable change.

It can be concluded that a soft regulatory method is not fully suitable tool in “achieving strategic change for sustainability beyond incrementalism to tackle deep transformation towards more sustainability” (Hahn & Figge, 2016, p 1). In this aspect, the approach failed to encourage deep transformations as the tools only really affected the high-end housing market and benefitted only the established industry leaders. There was very little impact on the lower-end of the housing market mainly due to the misconceptions that vulnerable communities or low-end housing contexts as such do cannot adopt the guidelines. Therefore the guidelines and tools can be argued to not create “sustainable and resilient communities” – but rather reinforce the privilege of a few communities and the reputable industry practitioners. This creates further risks of having sustainability perceived as something that can only be tackled by the wealthy or those who can afford to take risks and participate in such change. Furthermore, had it not been for the effect of unforeseen crises that I discuss next, it is likely that the rate and depth of change within the industry would have remained very limited.

5.2.3.1 *Crisis driven response*

The water and energy crises were key factors in accelerating the adoption of the soft regulatory tool, generating a shift in understanding. Existing theory has identified the role of exogenous shocks in accelerating change (Benson & Taylor, 1977; Bessant, Howard & Trifilova, 2015). A crisis driven response looks into how an external crisis or pressure both instigates innovative responses and accelerates action in an organisation or industry (Benson & Taylor, 1977; Bessant *et al.*, 2015). A crisis – “whether natural or man-made, requires rapid problem solving if agencies or actors are to avoid the huge negative impacts of such disasters” (Bessant *et al.*, 2015:36). Therefore not only does a crisis reveal the resilient nature of an organization and its actors, but also plays a huge role in shaping innovative initiatives that can accelerate change within an industry (Bessant, Rush & Trifilova, 2021).

The GBCSA used the crisis to their benefit to reshape and strategize their implementation methods and framed their motives as a direct response to the water and energy crisis that was prominent at the time.

Arguably when a crisis is faced head on, delimiting factors that hinder change and action take a seat back (Benson & Taylor, 1977). Scholars suggest that a crisis causes *reframing* of certain frames to push the agenda of an innovative response and hindering factors such as contrasting views or resistance to change, are all undermined in the response to a crisis (Bessant *et al.*, 2015). During the water and energy crisis, the housing industry became more willing to try innovative methods to tackle the crisis. Not only does a crisis “provide a laboratory for exploring alternative approaches...but the novel innovations permit rapid and widespread change and awareness of the crisis” (Bessant *et al.*, 2015:55). The GBCSA then at the time was a prominent agent for change and using the approach of rekeying/reframing, promoted the tools as a ‘Net-zero’ approach that encouraged infrastructure to be off the grid and produce their own energy and water, to be unaffected and resilient to the crisis at hand.

However crisis driven responses can also strengthen certain hindering factors of sustainable change (Benson & Taylor, 1977; Bessant *et al.*, 2015). The concept of ‘reverse innovation’ speaks to how a crisis can also add pressure and as a result hinder innovation by encouraging quick fix or temporary solutions to the matter (Benson & Taylor, 1977). Furthermore, the innovative solutions that are a product of crisis responses are at times viewed as experimental and not thoroughly developed – hence restricting industry or organizational adoption of such solutions (Bessant *et al.*, 2015). Understanding how various stakeholders react to a crisis and potentially reframe their action may provide insights into how change unfolds within a particular sector with diverse recipients and proponents for change (Bessant *et al.*, 2021).

5.3 Practical Recommendations

In this section below I first provide recommendations for designing guidelines that tackle sustainability in practical and tangible ways. I then discuss recommendations for industry practitioners from both the private and public housing sector on how to engage and adopt such initiatives for change, derived from the findings. Lastly, I present recommendations for governing bodies and regulators that wish to implement or improve existing initiatives that promote sustainable guidelines in an industry that is as complex as housing.

5.3.1 Recommendations for designing sustainable guidelines

Test tools on a small scale rather than big scale: The tools were heavily tested with established industry leaders or firms and large-scale projects that were perceived to have more resources or freedom to experiment. This resulted in a stigma that the tools were unachievable for other projects or new industry practitioners. The tools must be therefore be tested with small scale projects and industry

practitioners from all levels of experience, to localise the use and impact of the tool and to build up the skills and resources of less experienced project teams through collaboration and partnership.

Open to constant testing and alterations: Design guidelines must be open to alterations and iterations to keep it relevant and accommodative to the needs and demands of the context it functions in. Acknowledge that the tool will never be set in stone - constant iterations, especially with consistent industry feedback, will increase the efficiency and approachability of the tool.

Avoid checklist mentality: The output focused nature of the tool was very beneficial in implementing and monitoring the change. However, the checklist mentality and format of the tool must be avoided to push for innovative methods and incentives that encourages improving familiar methods of practice and not just meeting the bare minimum.

Design guidelines for resilience: Tools must respond to the context but also build resilience. The guidelines must accommodate for future needs and urgencies. In our current context, the pandemic demands for various changes or additions to sustainable guidelines such as promoting localised living, less reliance on transport and infrastructure that aids the 'work from home culture'. These urges must be reworked into the guidelines to accommodate the needs for the current users but also build resilience for any future needs as such.

5.3.2 Recommendations for industry practitioners

The following section details recommendations for public and private housing industry practitioners that make up the housing industry.

Collaboration instead of blaming mentality: Practitioners from both industries are well aware of the unique capabilities they hold in terms of engaging with the change initiatives. For example, the private sector comes with the space to experiment and innovate more compared to the public sector. Whereas the public sector comes with a more authoritative manner that can speed up implementations. Recognizing that both the public and private sector have individual roles to promote change and collaborating and using that in a positive manner to build on each sides capabilities and strengths will be extremely vital for any implementation strategy.

Change in mindset for effective change: Through the findings it was evident that most hinderance to participating in change within an industry was due to misconceptions and mindset resistance. The most ground-breaking tools and guidelines can be developed; however, they are deemed ineffective or pointless if the industry is not open to such improvements or change. A change in mindset and openness to improvement or experimentation within industry practitioners is heavily influential on the uptake and success of initiatives that require change in familiar methods of practice.

Partnership with low-end housing market: Housing projects for vulnerable communities or that tackle affordable housing are misinterpreted as projects that hold additional risks and resist any adoption of sustainable measures for that matter. Instead, practitioners may benefit from recognizing the opportunities that lie in such projects and the larger impacts it can have in addressing major housing industry issues that the country faces such as reversing spatial injustice of the country. Informality has been globally misinterpreted as unnecessary and non-beneficial patterns that developed only as means to provide for the poor. We fail to realise how this is an intricate system within our society. With copious potential, if understood and developed, that can fulfil the needs of ecological sustainability. The urban poor communities and the networks they build within their informal settlements and informal economy have heavy influences in contributing towards resilience in various contexts.

5.3.3 Recommendations for regulators or governing bodies

The following section entails recommendations for regulators or governing bodies such as the GBCSA and other organizations in the private sector or the housing and policy department in municipalities and governing bodies in the public sector.

Policy regulations combined with soft regulations: The combination of regulatory approaches to combine elements of soft regulations can be heavily impactful. For instance policies or planning strategies from governing bodies such as municipalities, can incorporate elements of soft regulations to strengthen industry engagement, innovation and collaboration when implementing the policy within the industry.

Strengthen industry working groups: Establishing and collaborating with industry working groups that consisted of practitioners and stakeholders, proved to be extremely beneficial for the GBCSA. This led to the development of tangible tools and guidelines, increased transparency and built networks. However, industry working groups should be given more recognition in the development of the tools to encourage accountability and a sense of responsibility for effective implementation of the guidelines and tools that they assisted with. Additionally, the industry working groups should be institutionalized to have a sense of credibility and encourage industry practitioners to be a part of the working group.

Immediate beneficial incentives for all users: Incentives have been proven to effectively encourage volunteer participation from recipients. However, the GBCSA provided long-term incentives such as water and energy savings or memberships with the GBCSA etc. These incentives focused more on benefiting the client or occupant of the building in the long run, rather than immediate benefits for industry practitioners. It is necessary to work closely with industry to understand what specific incentives past occupation stage will be beneficial, to encourage participation from industry professionals to use the guidelines and tools in every project they embark on. Immediate incentive such

as tax breaks or grants from municipalities can be very appealing to industry practitioners to participate in the change.

Increase awareness beyond the industry practitioners: The GBCSA effectively raised awareness and established itself as an advocate for change within the industry and tool recipients. However, awareness should branch out from just current industry practitioners, to reach a broader spectrum of stakeholders. For example, students enrolled in built environment courses can be educated and aware of such incentives to be encouraged to incorporate the tools and guidelines early on. Spreading awareness to the public can also encourage occupants of the building or homeowners to include these guidelines in their buildings and participate and contribute to the demand for the need of green buildings.

5.4 Recommendations for further research

The research study focused on how to implement design guidelines for sustainability in the housing sector, and looks into the role and establishment of soft regulations such as GBCSA's Green Star rating tools. Through the study I found that soft regulations are effective for change within an industry if a balance between ambiguity and a prescriptive approach is maintained. However, the most significant change was triggered when the industry faced a crisis and needed to respond to it, as this created something akin to a mind-set shift within the industry. To further improve our understanding of the complexities that lie in the effective implementation of guidelines and tools for sustainability within an industry, future research could explore the crisis response and how it increased the drive for change. Better understanding how crises stimulate change can be a beneficial, especially considering the fact that we are currently in the midst of a crisis – a global pandemic. Crisis driven responses are very prevalent in the South African housing industry hence the literature on crisis response opens up the discussion on how sustainability initiatives can either be enhanced or hindered in a context that faces a crisis. Any tools or guidelines that encourage resilience can be heavily influenced by this matter.

Additionally, this study only looked into the GBCSA Green Star rating tools. Various other soft regulations or tools that promote sustainable change within the housing industry can be researched and compared in order to identify key success factors in implementing initiatives for change. A case-study approach in analysing and comparing the implementation and development of all sustainability tools in the built environment can provide valuable insight. Furthermore, engagement with other sectors of the built environment, such as commercial building sector, civil or public buildings, can broaden the spectrum of input from only focusing on the housing sector, to understanding various built environment industry practitioners on how to incorporate and adapt to change in the infrastructure industry.

5.5 Conclusion and personal reflections

The way we build our houses have a significant impact on our community, environment and our country's state of resilience. Importance must be given less to counting houses and more to building homes, where focus given on meeting the housing demand in the quickest and cheapest way possible is shifted to focus on building sustainable and resilient homes for the future. Any sustainability initiative that require changes to the standard methods of practice in an industry, faces many challenges due to the mindset resistance to change (Smets & van Lindert, 2016). Theoretical frameworks such as issue fields and framing assist with identifying and understanding many of the hindering factors that industries face, in the process of change. Initiatives attempt to tackle these hindering elements through collaboration, soft or regulatory approaches, and by designing effective tools or guidelines that tackle sustainable change. However ultimately, even with such efforts, without a mindset shift, the tools and frameworks remain futile.

Through this thesis, I attempted to understand how we can best develop policies and guidelines that encourage sustainable housing, in particular investigating the green building sector and the role of voluntary approaches to promote change. I set out on this research expecting to find many practitioners within the industry to be oblivious or ignorant to the need of changing our current ways to meet housing demand. Instead, I was faced with a very contested space where practitioners were aware of the need for change, but high demand pressures and restricted delivery resources results in a mindset that led them to resistant to change and exploration. Achieving sustainable housing will require deep institutional change driven by strategic and intentional methods of engagement. While current initiatives, such as the GBCSA guidelines, bring us a step closer to a world where building practices are aligned with the long-term sustainability needs of our community, more progress is required to transform the industry. I conclude that efforts should be placed on recognizing and understanding why and how practitioners engage in or resist change. Beyond the efficacy of sustainable guidelines, it is important to create a willingness to embed a motivated sustainability mind-set in industry to change every day building practices.

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Appendices:

Appendix A: Participant information list with allocated codes

<i>Group of participants</i>	<i>Code</i>	<i>Participant</i>	<i>Description</i>
<i>(PROPOSANTS) Consultants involved in the development of the tool by either working in the GBCSA or form part of the Focus GB Consultants group</i>	C1	██████████	Principal Consultant, founder of a GB consultancy agency and involved in developing tool during initial stage
	C2	██████████	Former MD of GBCSA heavily involved in the write up of all GBCSA tools
	C3	██████████	GB consultant involved in reworking and modifying the tools
	C4	██████████	Principal Consultant, involved in developing and reworking the GBCSA tools
<i>(RECIPIENTS) Practitioners using the various tools in the Private Sector frequently</i>	U1	██████████	GB Consultant that uses the tools frequently
	U2	██████████	GB Consultant that uses the tools frequently
	U3	██████████	Lecturer and Architect who has worked with the tools
	U4	██████████	GB Consultant that uses the tools frequently
	U5	██████████	CoCT Architect who has worked with the tools
<i>(OTHER STAKEHOLDERS) Policy makers with some experience in using the tools, but are mainly Policy Implementors – involved in the development and implementation of Policy</i>	P1	██████████	CoCT Architect who has engaged and worked with the tools quite intensively
	P2	██████████	Head of sustainability unit in CoCT, engaged once with tools
	P3	██████████	Developer from Private sector that assist with policy development
	P4	██████████	CoCT Policy and research unit Manager
	P5	██████████	CoCT Policy and research unit Manager

Appendix B: Informed consent form



Informed Consent Form

Context and overview of the research

The research investigates the context of Soft Regulations such as Certification tools and Policies in the Built Environment by:

- Understanding processes and complexities of formulating Soft Regulations as a tool for sustainable change in the Built Environment.
- Investigating the motivations and dynamics that influence Stake Holder engagement, expectations or resistance towards the implementation of Soft Regulations.
- Exploring design guidelines within Soft Regulations that both encourage and regulate sustainable development in the Built Environment.

This research forms part of developing the Design Guidelines for the Inclusionary Housing Policy that the City of Cape Town is currently developing.

The findings of the study are expected to be presented to relevant policy makers and/or published in practitioner and academic networks.

2. Principal researcher

The research is a part of Elizabeth Varghese's Masters study at the School of Public Leadership at the University of Stellenbosch.

Elizabeth's contact details: Email: elizabethammu@hotmail.com Phone: 081 3188972

This research has been approved by the University of Stellenbosch Humanities Research Ethics Committee.

3. What is expected from interviewees/ participants in this research?

Interviewees are asked to engage in a semi-structured interview discussing themes highlighted by the researcher's topic and to freely answer explanatory or clarifying questions. There are no known risks associated with this study. Participation in this research is voluntary and you can choose to withdraw from the research at any time.

4. Recording the interview

Recording the interview supports the accuracy of the data analysis process. Unless expressly indicated, the interview will be recorded. You may change your mind about your decision during or after the interview. You may also ask that certain sections of the discussion to not be recorded.

Permission to NOT record

5. Confidentiality

The content of the interview is treated as confidential. The researcher will not attempt to identify you with your responses or comments in this interview, or to name you as a participant/interviewee in the study, nor will facilitate anyone else doing so.

Data obtained during interviews will be kept with the same level of care that the researcher keeps personal information and access will be restricted by a password. No one besides the researcher and her supervisors will have access to it.

I acknowledge that I am participating in this study of my own free will. I understand that I may refuse to participate or stop participating at any time without penalty. If I wish, I will be given a copy of this form.

Participant's Signature _____

Print name and surname _____

Appendix C: Semi-structured interview questions

Semi-Structured Interview Questions

Context and overview of the research

The research investigates the context of housing and the implementation of sustainable initiatives in the industry:

- Understanding processes and complexities of formulating a policy in the Built Environment.
- Investigating the motivations and dynamics that guide actors' engagement, expectations or resistance towards sustainability policy implementation.
- Exploring design guidelines that can be used to implement housing in the most sustainable way.

Structure of the Interview

Semi structured interview with guiding questions and sufficient space to allow participants to contribute to the discussion.

1. In your professional capacity, in what ways have you engaged with the GBCSA Certification tool?

Developing, Implementing and Using the tool

Tool user:

2. What were the evident benefits of using this tool, and in any way has this tool contributed towards Spatial Justice in South Africa? What major changes has happened due to the introduction of this tool?
3. Was the tool prescriptive enough or did it have enough freedom for the design?
4. What would you say are some of the downfalls of the tool and as a user, what are the common difficulties (Where there any projects that use the tool in a wrong way and built something that did not meet the criteria but was still awarded the certificate?)

Developing and implementing the Tool:

5. What do you identify as effective steps that were used in developing and implementing the tool?
6. When developing the tool, how did you keep the balance of being prescriptive and ambiguous – specifically design wise. How do you ensure the tool gives enough guidance but also gives enough freedom to develop unique designs.
7. What did you see as the main barriers that restricted effective implementation of this tool?
8. What would you change?

9. Would this tool be more effective if it was a mandatory requirement or is it better that it is a soft regulation?
10. Stake Holder engagements – Resistance and support from which groups?

General topic questions:

11. What would you define as Spatial Injustice?
12. In your opinion, what are the main causes of Spatial Injustice in South Africa?
13. What mechanisms or strategies do you suggest can tackle the issue of Spatial Injustice?
14. What role does Design have on Inclusivity and tackling Spatial Injustice?
15. What design elements are necessary to encourage inclusivity?
16. How can the Housing Policies address design elements?
17. What do you suggest are effective methods of change?
18. What do you see as the main barriers that will restrict effective implementation of change?

Appendix D: Data display theme grouping table

	Enabling Factor	
<p>4) Advocacy</p> <p><i>It is the right thing to do</i></p> <p><i>How did the GBCSA get people on board</i></p> <p><i>What are the solutions and how the communicated them</i></p>	<p>- GBCSA Represented a good cause</p> <p>-Target Social and environmental issue</p> <p>-Innovative way to offset damages</p>	<p>The Green Building council did a lot of work in terms of advocacy and the need for transformation into a Green Building movement. They aligned their goals and way of thinking to the needs of sustainable city planning and really promoted a clear and powerful motive out there. U3</p> <p>Sometimes these developers are also pushed into a corner by many of the activists group that question them about sustainability and spatial justice. So they face the pressure to answer them when they haven't made any provisions to tackle these issues. C1</p> <p>As you know a lot of big clients such as oil companies, they've got the money and they will try and find new ways to offset their carbon footprints somehow even if it costs them. U3</p> <p>The people that wanted to do the pilot projects were kind of leaders in industry, willing to try out innovative methods. And so it's key in finding those people and bringing them on board to do the first couple of projects. C4</p>
<p>1) Built up from Experience and Expertise</p> <p><i>Framing: TRANSLATION</i></p>	<p>Adapted from other countries</p> <p>Industry engagement</p>	<p>We got a lot of backing and information from the Australians and American examples, but we treated it as an experiment. Which made us test and model the tool to our own context multiple time before the roll out. C2</p> <p>We learnt a lot from international examples yes, but we had to develop our own sort of modelling protocol and performance standard that best suited our industry. You basically get points according to how well you meet the tool's requirements, e.g. percentage of energy saving compared to that Baseline that we set based on our context. C1</p> <p>Our core stakeholder working groups - We had to kind of structure them in a way that had a variety of skill sets so there was about 25 to 30 people of a different skill set. So we had some civil engineers some Architects and electrical engineers, mechanical engineers, landscape architects, So all the types of people that would be involved in the kind of projects, They need to be on board. C3</p> <p>All of that application feedback and stakeholder input is critical. When coming up with standards for the tool, it's not just a theoretical exercise that somebody thought up of or developed from all sorts of desktop research etc. This method will fail because you haven't had application. You haven't had people in the Industry saying well this isn't going to work or why haven't you thought about this instead. C2</p>

<p>5) Awareness</p>	<p>Workshop – trainings offered to anyone Conference – hosted annually where successful projects promoted Transparency and constant reworking of tool</p>	<p>I think if we are to push you for innovation and we also have to ensure you have access to the expertise, materials and have an enabling environment in achieving that. Our Workshops are open to any individual and cover all the basics of the tools in and out. C2</p> <p>Trainings at the GBCSA was recommended to me by my client to become an Accredited Professional. I thought it would be a difficult process but it was quite attainable. Plus it helped with getting linked to other AP's that were working on similar projects as you. U3</p> <p>You realise through the workshops, pre-modelling and consulting that even just following the bear minimum of the standards of the Green building tools, you can get a four-star rated building. U1</p> <p>Early adapters of the tool obviously move into the next phase and start being more efficient and effective in what their implementing. These achievements should be celebrated and commended. C1</p> <p>Workshops bring in more clients as they see the attainability of the tools, meet people who have similar interests in the tool and hear about any projects that successfully implemented the tool. C2</p> <p>I think we might have offered them maybe a discount on the registration fee or things like free workshops. But for clients, one of the most sought out incentive is the huge marketing benefit that we promoted during our conferences. C1</p>
<p>3) Output Focused</p>	<p>Achievable baseline to get the bare minimum standards Prescriptive balance to leave room for innovation</p>	<p>You are ultimately rated with the tool depending on your output. According to the tool to get a 4 star or 5 or even 6, you have to meet a certain number of standard's in order to get to that point – which is clearly laid out in the tool.</p> <p>So if someone says I'm in a five-star building most people won't necessarily question how or what did you specifically do to get to the five-star. From an Investor's perspective, it's all about showing what you have as your rating – purely output focused. U4</p> <p>What's really important that you have a set achievable targets and test them beforehand. When a project starts the Green rating process we all sit down with the tool and design brief and say ok, Let's see how many points we can get in order to tackle a four star rated building. The project team can then know where (as in which categories) we need to really go for it because those are the easy points. U1</p> <p>So it's a definitely a balance of where you can put in performance requirements and then other times you have to put set requirements that people have to do to</p>

		<p>achieve the standard. It definitely depends on the goal you're kind of trying to achieve. Sometimes it is better to have performance-based standards, but at times you also need prescriptive points that must be followed to get the bare minimum. C2</p> <p>It was quite self-explanatory with an excel sheet with various themes that showed us what to do to get the bare minimum rating. But at the same time it also showed us that the bare minimum is achievable so it's really easy to go the extra mile and achieve a little bit more if we can. P3</p> <p>It's so easy to be prescriptive with such tools. But what we discovered is that the more you try and come up with prescriptive things, industry pushes back and says, well, we don't do it like that because we do it another way. C3</p> <p>The rating tools would not be considered prescriptive. You don't have to tackle all the credits of the tool you pick and choose what you want to tackle, leaving enough room for the designers to tackle this challenge in their own way. C1</p> <p>The tool definitely did not hamper the initial design we came up with, it only enhanced aspects of it and it did help to guide us on basic things like how the facade can manage energy and what kind of sustainable lighting can be used. It did give key pointers to where we can make small tweaks on the overall holistic design of the building. U1</p>
<p>6) Competitive Advantage</p>	<p>Client motivation Spear Head Innovation Attractive Incentives</p>	<p>If you are kind of a first in Industry, developers love that as they need the mileage and it really helps with sales. A first in something like a green star rated building would really be a demonstration of your market-leading ability. C1</p> <p>have grown to such an extent that there are now premiums placed on renting out or buying a green building.</p> <p>The demand now comes from the client as a requirement to differentiate themselves for competitive advantage. U3</p> <p>From an investment perspective, Green rated buildings feature Very highly and contribute towards the ESG rating of a portfolio and any spendable. C2</p> <p>This was the case I experience even more so now - the need for clients to differentiate their portfolio. Hence there's more focus in making your building more sustainable to make it more attractive. You have to either opt for a rating or you have to make It really obvious and show that you are doing better than your next door building sustainably speaking. P4</p>