

# "An interactive strategy tool's influence on strategic understanding."

Developing an interactive strategy tool and measuring its influence on strategic understanding through user experience interviews and questionnaires.

*Master of science thesis*

*Kevin Kok*

*Construction management and engineering*

*TU Delft + AECOM Benelux*

# Transforming communities

AECOM in Belgium, Netherlands and Luxembourg



# "An interactive strategy tool's influence on strategic understanding."

**Developing an interactive strategy map and measuring its influence on strategic understanding through user experience interviews and questionnaires.**

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at the Delft University of Technology,  
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## Preface

This research, and master's degree, would not have been possible without the incredible support I have received from my committee, family, friends, colleagues, and classmates. I could write another thesis length list naming everyone, but I will try to keep it as simple as possible to avoid a movie credits list.

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I hope you enjoy reading this master's thesis.

## Abstract

This master's thesis sought to explore the influence of an interactive strategy map on employees' strategic understanding. The objectives of the research were to firstly conceptualize and develop an interactive strategy map, secondly, analyse how employees across the organizational hierarchy interacted with the map, thirdly, to measure employees change in strategic understanding resulting from interacting with the map. To accomplish these objectives the research employed a qualitative approach of data acquisition and analysis, utilizing literature reviews, questionnaires, and user interaction interviews to evaluate the influence of the developed interactive strategy map. To give the map interactive dashboard properties, it was developed in Microsoft PowerBI. The development of the interactive strategy map utilized principles of a research-through-design approach. An initial design draft was created and subsequently customized. This was followed by the generation of a prototype, which was further refined through feedback obtained from user experience interviews. Finally, validation was achieved through the use of Likert-scale questions in questionnaires. The final map featured an array of filters, allowing users to gain additional insights into the strategy content. These filters not only facilitated a deeper understanding of the strategy map framework but also allowed users to personalize and refine the content to align more closely with their specific needs and objectives.

The qualitative results showed that operational management was focused on the overall vision and strategy; middle management was focused on specific tasks and objectives; Senior management was interested in the translation of corporate strategy to business strategy. The Likert-scale results demonstrated that senior management had the highest increase in their “need to understand strategy”, and the operational level had the highest increase in “strategic understanding”. Middle management only reported a slight increase in strategic understanding. Overall, each level highly agreed that the interactive strategy map is an effective tool for strategy communication and mentioned they would use the tool monthly depending on how frequently the content is updated.

In summary, this research concludes that the strategy map, as well as the process of including employees in its development, is an effective way of increasing strategic understanding. Additionally, using a new strategy framework identifies inconsistencies in the existing strategy, thereby increasing coherence in the strategy. Furthermore, including feedback from employees throughout the organizational hierarchy increases strategy cohesion. Lastly, the inclusion of interactive filters and colour coding in a strategy communication tool not only invites inquiry into the strategy, but also makes it more tangible to employees.

**Keywords:** *Interactive strategy map, business strategy, strategy understanding, qualitative research, research through design, PowerBI, organizational engagement.*

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## List of abbreviations

|      |  |
|------|--|
| BSC  | Balanced scorecard                             |
| KPI  | Key Performance Index                          |
| PMCM | Project Management and Construction Management |
| PSF  | Professional Services Firm                     |



## Executive Summary

### Background context and methodology:

Within the landscape of organizational management, the term “strategy” is frequently employed as a buzzword, with a supporting organizational strategy that is often ambiguously defined and therefore difficult to effectively implement. In practice, the development of strategy follows a top-down approach, where senior management formulates the strategy and subsequently communicates this to the lower levels of the organization. When strategy is developed and communicated in this way it frequently leads to inconsistencies and a lack of practical applications of the strategy. Consequently, lower levels of the organizational hierarchy often struggle to comprehend the strategy and fail to establish a sense of alignment with it. The challenge with this approach, is that the concept of strategic alignment states that when goals and resources are aligned, the organizational performance increases. Hence, organizations that fail to capitalize on increasing their strategic alignment are inadvertently forgoing the potential benefits of strengthening their organizational performance.

Strategic alignment manifests as both external and internal alignment. External alignment is achieved when an organization's strategy meets external market opportunities, while internal alignment is attained when employees and business units synchronize with the overarching corporate strategy. Internal alignment involves two essential stages: firstly, fostering a shared understanding of the strategy, and subsequently, forging agreement and consensus among employees. Consequently, it is reasonable to deduce that enhancing strategic understanding will elevate internal strategic alignment, thereby leading to improvements in organizational performance. To aid in this, various “strategy tools” are available that assist with the communication of strategy internally, such as the strategy map and the balanced scorecard. However, research into their effectiveness and their use in practice is limited, particularly the strategy map. By combining the lack of research into strategy maps, together with the need for organizations to increase their strategic understanding, a critical research gap emerges.

This study sought to investigate the potential of employing a strategy map as a solution to address the challenge of how to increase strategy understanding. In doing so, it aimed to fulfil several theoretical imperatives including analysing how the tool is used in practice by employees throughout the organizational hierarchy, assessing the tool's effectiveness, and to document the tool's development process. As a result, the primary research question for this study emerged as follows:

*"How does interacting with a strategy communication tool influence an employee's understanding of business strategy?"*

To align with the research's aim and address the primary research question, this study undertook the development of an interactive strategy map utilizing principles grounded in research-through-design methodologies. Subsequently, the effectiveness of the tool was examined through a qualitative research approach. During the development phase, user interaction interviews played a pivotal role in analysing how employees on different levels of the organizational hierarchy used the tool. This addressed recommendations on how viewing a strategy tool as a boundary object can contribute to heightened strategic cohesion and enhanced strategic understanding. The strategy map's effectiveness was then measured through a pre and post questionnaire, which required interviewees to rank their perspective on various questions using a 5-point Likert scale before and after interacting with the strategy map. The questionnaires measured the change in employees understanding of the strategy, their need to understand the strategy, as well as how effective they considered the tool for communicating strategy and increasing understanding.

The study's sample group comprised eight employees, deliberately selected to represent a diverse cross-section of the organizational hierarchy within a single business unit of a corporate organization. To obtain a comprehensive range of results, the interviewees were chosen to encompass a wide array of specializations and projects, ensuring a balanced distribution across various facets of the organization. This approach aimed to capture a holistic perspective on the strategy map's impact, accounting for the diverse roles and responsibilities within the business unit.

### Final strategy map:

The final iteration of the strategy map was developed using Microsoft Power BI, with a representative screenshot of the map's homepage provided in Figure 1. Leveraging the capabilities of Power BI this map included an array of interactive features designed to allow employees to access relevant information about the strategy and its underlying framework. These interactive elements allowed users to filter and tailor the map to their specific needs, thereby enhancing its relevance and utility.

Information icons accompanied by text box pop-ups were strategically positioned throughout the map to facilitate user interaction, guide users, and provide supplementary details. Each vision and strategy statement and icon, functioned as filters, enabling users to isolate the relevant initiatives. Moreover, a filter panel was integrated, allowing users to switch between the corporate strategy and individual business line strategies.

The inclusion of a color-coding system further facilitated understanding by establishing clear associations between pillars and thematic elements. To highlight gaps in the strategy, any icons lacking associated objectives or initiatives were deliberately greyed out, thereby drawing attention to areas in need of development and refinement. This comprehensive design approach aimed to transform the strategy map into a dynamic and user-centric tool, fostering enhanced strategic understanding and cohesion across the organization.

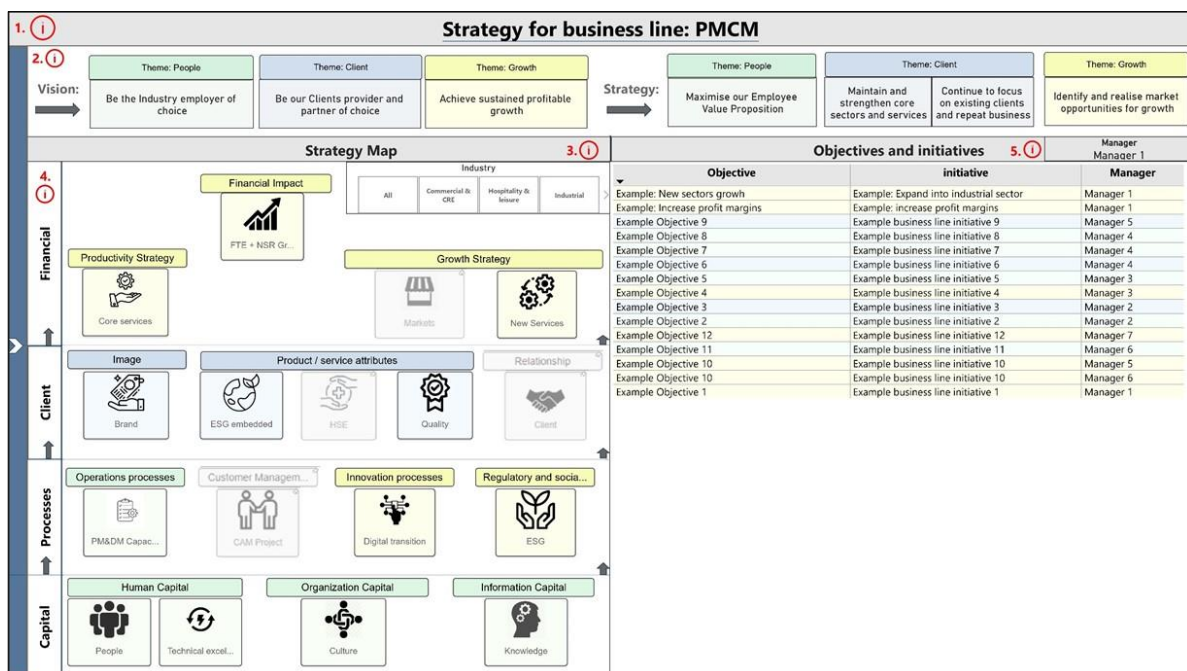


Figure 1: Final strategy map (Executive summary)

## **Results and discussions:**

The results obtained from user interaction interviews, the analysis of responses to open-ended questions in the questionnaires, and Likert scale rankings, provided valuable insights into the perspectives of different levels within the organization regarding the strategy map:

### *Operational Management:*

In the user interaction interviews operational management exhibited a predominant interest in understanding the overarching vision and strategy of the organization. They also displayed a keen interest in comprehending the processes involved in the development of the strategy. Furthermore, operational managers expressed a desire to gain clarity on how their individual roles align with and contribute to the overarching organizational strategy. The results from the Likert scale showed that operational management had the largest increase in strategy understanding, and a small increase in their need to understand strategy. Finally, operational management scored the tool the highest in terms of its effectiveness at communicating strategy and increasing understanding.

### *Middle Management:*

During the user interaction interviews middle management demonstrated a more specific focus on the tactical implementation aspects of the strategy than the other levels. They were particularly concerned with the specific initiatives and objectives assigned to them, their respective teams, or departments. Middle managers appeared to employ more selective filters to sift through the information, prioritizing what they perceived as directly relevant to their projects and programs. Middle management showed only a marginal increase in their strategy understanding and their need to understand strategy and ranked the tool the second highest in terms of its effectiveness for strategy communication.

### *Senior Management:*

Senior management was primarily concerned with the translation of the corporate-level strategy into actionable business-unit strategies. In this context, they frequently used the filter that switched between the corporate and business unit strategy. Moreover, senior management appreciated that the tool offers a platform for discussion and makes the strategy more real and tangible and invites inquiry into the strategy. Senior management also reported the largest increase in their need to understand the strategy, and the second highest increase, after operational management, in terms of their understanding of the strategy. These large increases occurred despite senior management ranking the tool with the lowest effectiveness, and them having the highest pre map understanding and perception of need to understand. These increases can be attributed to their active involvement in the development process.

### *The strategy map development process:*

The development process of the strategy map also yielded notable insights and outcomes. Firstly, the application of a novel strategy framework for analysing and communicating an existing strategy highlights inconsistencies and identifies gaps within the existing strategy. This facilitates refinement of the strategy, ultimately leading to a more coherent strategy. Secondly, by perceiving a strategy tool as a boundary object and conducting user experience interviews, an opportunity emerges to gain insight into how individuals at various organizational levels perceive and engage with the strategy. Addressing these diverse perspectives within the strategy map can transform the communication of the strategy from a traditional top-down approach to a more inclusive and participatory one. This shift fosters greater cohesion within the strategy and, in turn, enhances overall understanding and alignment among employees.

## **Conclusions, limitations, and recommendations:**

Based on the observed positive correlation between the implementation of the interactive strategy map on the sample group's understanding of strategy, as well as their perceived need for a deeper understanding of strategy, it can be concluded that adopting an interactive strategy map is a valuable tool for enhancing strategic understanding. This study confirms that the strategy map enhances strategic understanding, especially among employees with limited subject matter knowledge of the strategy, such as the operational level. Active involvement in the tool's development also contributes to increased strategic understanding, as seen with senior management. This finding suggests that active engagement in the implementation process of other strategy tools would likely yield similar benefits.

Furthermore, the process of developing the tool, also serves as an effective means of increasing strategy understanding. Using a new strategy framework to analyse a strategy, that was developed using a different framework, proves effective in exposing gaps and inconsistencies within the existing strategy. This not only improves the coherence of strategy content, but also heightens employees' perception of needing to understand the strategy. This effect is particularly pronounced among senior management, who bear responsibility for strategy development. While this research focuses on the development of a strategy map, it is reasonable to infer that applying a similar process with alternative strategy tools would yield similar opportunities for identifying inconsistencies and enhancing strategic coherence.

Moreover, considering a strategy tool as a boundary object and conducting user experience interviews offers the prospect of integrating feedback from diverse hierarchical levels. By gaining insights into how each organizational level interacts with and prioritizes elements of the strategy and by examining how strategy is perceived and understood from a bottom-up perspective, organizations can integrate valuable feedback. This process ultimately leads to a more cohesive strategy and enhances overall strategic understanding.

While this project demonstrates promising results, it is necessary to acknowledge the limitations related to the research. The absence of a control group, not involved in the strategy map development process, makes it challenging to separate the influence of involvement in the tool development from the tool's impact. This research was conducted within one business unit of a diversified organization, limiting the direct applicability of the results to other diversified organizations. Due to the small sample size, quantitative questionnaire results lack statistical significance, and therefore were described qualitatively.

Recommendations for practice are to firstly align strategy development with the strategy map framework and implement a strategy map. Secondly, it is essential to consistently incorporate a strategy communication tool into regular progress meetings focused on strategy. This ongoing integration will facilitate effective communication of strategic initiatives over time. Thirdly, middle management should actively participate in the strategy development process. This inclusion allows for the integration of diverse projects and programs into the overarching strategy, increasing its relevance and applicability across various departments and levels.

Recommendations for future research are to firstly expand sample size for quantitative analysis and incorporate a sample group that is not involved in the tool's development. This will enable researchers to quantitatively measure and analyse a tool's impact with greater statistical significance, and separate analysis of the effects of the tool itself from the influence of the process. Secondly, to enhance the generalizability and validity of the research findings, similar studies should be conducted in different organizations. This comparative research approach will help assess how the same strategy communication tool and processes perform across various organizational contexts, yielding valuable insights for practitioners and researchers alike.

## Samenvatting

### Achtergrond en methodologie:

Binnen het landschap van organisatiemanagement wordt de term "strategie" vaak gebruikt als een modewoord, met een ondersteunende organisatiestrategie die vaak ambigu gedefinieerd is en daarom moeilijk effectief te implementeren. In de praktijk volgt de ontwikkeling van strategie een top-down benadering, waarbij het senior management de strategie formuleert en deze vervolgens communiceert naar de lagere niveaus van de organisatie. Wanneer strategie op deze manier wordt ontwikkeld en gecommuniceerd, leidt dit vaak tot inconsistenties en een gebrek aan praktische toepassingen van de strategie. Bijgevolg hebben de lagere niveaus van de organisatiehierarchy het vaak moeilijk om de strategie te begrijpen en slagen ze er niet in om zich ermee af te stemmen. De uitdaging van deze aanpak is dat het concept van strategische afstemming stelt dat de prestaties van de organisatie toenemen, wanneer doelen en middelen op elkaar zijn afgestemd. Organisations die er dus niet in slagen om hun strategische afstemming te verbeteren, lopen onbedoeld de potentiële voordelen van het versterken van hun organisatieprestaties mis.

Strategische afstemming manifesteert zich als zowel externe als interne afstemming. Externe afstemming wordt bereikt wanneer de strategie van een organisatie voldoet aan externe marktkansen, terwijl interne afstemming wordt bereikt wanneer werknemers en business units zich afstemmen op de overkoepelende bedrijfsstrategie. Interne afstemming omvat twee essentiële stadia: ten eerste het bevorderen van een gedeeld begrip van de strategie en vervolgens het smeden van overeenstemming en consensus onder werknemers. Bijgevolg is het redelijk om af te leiden dat het verbeteren van het strategisch inzicht de interne strategische afstemming zal verhogen, wat zal leiden tot verbeteringen in de prestaties van de organisatie. Om hierbij te helpen zijn er verschillende "strategietools" beschikbaar die helpen bij de interne communicatie van strategie, zoals de strategiekaart en de balanced scorecard. Onderzoek naar hun effectiviteit en hun gebruik in de praktijk is echter beperkt, in het bijzonder naar de strategiekaart. Door het gebrek aan onderzoek naar strategiekaarten te combineren met de behoefte van organisaties om hun strategisch inzicht te vergroten, ontstaat een kritiek onderzoekshiaat.

Het potentieel van het gebruik van een strategiekaart om het inzicht in de strategie te vergroten is onderzocht. Op die manier werd getracht te voldoen aan verschillende theoretische vereisten, waaronder analyseren hoe het instrument in de praktijk gebruikt wordt door werknemers in de hele organisatiehierarchy, de doeltreffendheid van het instrument beoordelen en het ontwikkelingsproces van het instrument documenteren. De hoofdvraag voor dit onderzoek luidde als volgt:

*"Hoe beïnvloedt interactie met een strategiecommunicatietool het begrip van bedrijfsstrategie van een werknemer?"*

Om aan te sluiten bij het doel van het onderzoek en om de hoofdvraag te beantwoorden, werd in dit onderzoek een interactieve strategiekaart ontwikkeld, waarbij gebruik werd gemaakt van principes die gebaseerd zijn op onderzoek-door-ontwerpmethodologieën. Vervolgens werd de effectiviteit van de tool onderzocht door middel van een kwalitatieve onderzoeksbenadering. Tijdens de ontwikkelingsfase speelden interviews met gebruikers een centrale rol in de analyse van hoe medewerkers op verschillende niveaus van de organisatiehierarchy de tool gebruikten. Dit leidde tot aanbevelingen over hoe het beschouwen van een strategietool als een boundary object kan bijdragen aan een verhoogde strategische cohesie en een verbeterd strategisch begrip. De effectiviteit van de strategiekaart werd vervolgens gemeten door middel van een voor- en navragenlijst, waarbij de ondervraagden hun perspectief op verschillende

vragen moesten rangschikken met behulp van een 5-punts Likertschaal voor en na interactie met de strategiekaart. De vragenlijsten maten de verandering in het begrip van de strategie bij de werknemers, hun behoefte om de strategie te begrijpen en hoe effectief ze het hulpmiddel vonden voor het communiceren van de strategie en het vergroten van het begrip.

De steekproefgroep van het onderzoek bestond uit acht medewerkers, die bewust waren geselecteerd om een gevarieerde dwarsdoorsnede van de organisatorische hiërarchie binnen één business unit van een bedrijfsorganisatie te vertegenwoordigen. Om een uitgebreide reeks resultaten te verkrijgen, werden de geïnterviewden zo gekozen dat ze een breed scala aan specialisaties en projecten omvatten, waardoor een evenwichtige verdeling over verschillende facetten van de organisatie werd gegarandeerd. Deze aanpak was erop gericht om een holistisch perspectief vast te leggen op de impact van de strategiekaart, rekening houdend met de verschillende rollen en verantwoordelijkheden binnen de business unit.

### Definitieve strategiekaart:

De uiteindelijke iteratie van de strategiekaart werd ontwikkeld met behulp van Microsoft Power BI, met een representatief screenshot van de homepage van de kaart in Figuur 1. Door gebruik te maken van de mogelijkheden van Power BI, bevatte deze kaart een reeks interactieve functies die ontworpen waren om werknemers toegang te geven tot relevante informatie over de strategie en het onderliggende raamwerk. Deze interactieve elementen stelden gebruikers in staat om de kaart te filteren en aan te passen aan hun specifieke behoeften, waardoor de relevantie en bruikbaarheid werden vergroot.

Om de gebruikersinteractie te vergemakkelijken, werden informatiepictogrammen vergezeld van pop-ups in tekstvakken strategisch over de kaart geplaatst om gebruikers te begeleiden en aanvullende details te geven. Elke visie- en strategieverklaring en elk pictogram fungeerde als filter, waardoor gebruikers de relevante initiatieven konden isoleren. Bovendien was er een filterpaneel geïntegreerd waarmee gebruikers konden schakelen tussen de bedrijfsstrategie en de strategieën van de individuele business lines.

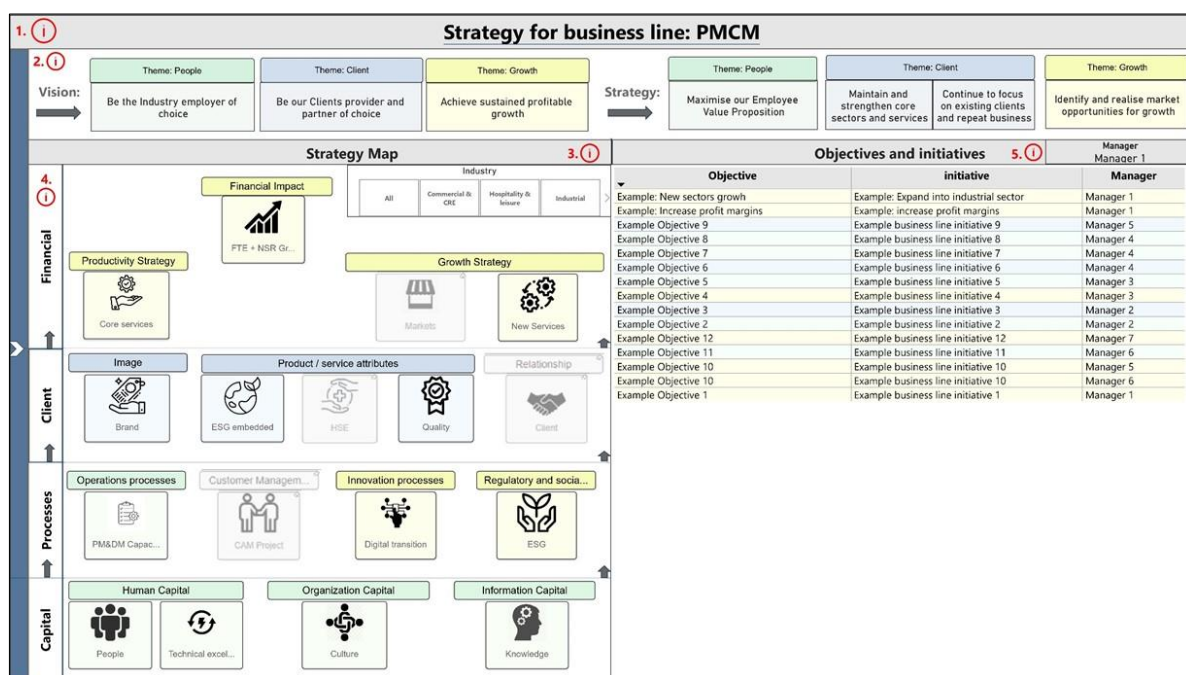


Figure 2: Definitieve strategiekaart (samenvatting)

De integratie van een kleurcoderingssysteem zorgde voor een beter begrip door duidelijke associaties te leggen tussen pijlers en thematische elementen. Om hiaten in de strategie te benadrukken, werden iconen zonder bijbehorende doelstellingen of initiatieven bewust grijs gemaakt, waardoor de aandacht werd gevestigd op gebieden die ontwikkeling en verfijning nodig hadden. Deze uitgebreide ontwerpbenadering was erop gericht om de strategiekaart te transformeren in een dynamisch en gebruikersgericht hulpmiddel, dat een beter strategisch begrip en samenhang binnen de organisatie bevorderde.

### **Resultaten en discussies:**

De resultaten verkregen uit gebruikersinteractie-interviews, de analyse van antwoorden op open vragen in de vragenlijsten en Likert-schaal rangschikkingen, gaven waardevolle inzichten in de perspectieven van verschillende niveaus binnen de organisatie met betrekking tot de strategiekaart:

#### **Operationeel Management:**

In de gesprekken met gebruikers toonde het operationeel management een overheersende interesse in het begrijpen van de overkoepelende visie en strategie van de organisatie. Ze toonden ook een grote interesse in het begrijpen van de processen die betrokken zijn bij de ontwikkeling van de strategie. Verder gaven operationele managers aan duidelijkheid te willen krijgen over hoe hun individuele rollen aansluiten bij en bijdragen aan de overkoepelende organisatiestrategie. De resultaten van de Likert-schaal toonden aan dat het operationeel management de grootste toename had in het begrijpen van de strategie, en een kleine toename in hun behoefte om de strategie te begrijpen. Tot slot scoorde het operationeel management de tool het hoogst met betrekking tot effectiviteit voor het communiceren van strategie en het vergroten van begrip.

#### **Middenmanagement:**

Tijdens de gebruikersinteractiegesprekken toonde het middenmanagement een meer specifieke focus op de tactische implementatieaspecten van de strategie dan de andere niveaus. Ze hielden zich vooral bezig met de specifieke initiatieven en doelstellingen die aan hen, hun respectievelijke teams of afdelingen waren toegewezen. Middenmanagers leken selectievere filters te gebruiken om door de informatie te ziften, waarbij ze prioriteit gaven aan wat ze als direct relevant voor hun projecten en programma's beschouwden. Het middenkader toonde slechts een marginale toename in hun inzicht in de strategie en hun behoefte om de strategie te begrijpen en beoordeelde het instrument als het op één na hoogst met betrekking tot effectiviteit voor het communiceren van strategie.

#### **Senior Management:**

Het senior management hield zich vooral bezig met de vertaling van de strategie op corporate niveau naar uitvoerbare business unit strategieën. In deze context gebruikten ze vaak de filter die schakelde tussen de bedrijfsstrategie en de strategie van de business units. Bovendien waardeerde het senior management dat de tool een platform biedt voor discussie en de strategie meer reëel en tastbaar maakt en uitnodigt tot onderzoek naar de strategie. Het senior management rapporteerde ook de grootste toename in hun behoefte om de strategie te begrijpen, en de op één na grootste toename, na het operationeel management, wat betreft hun begrip van de strategie. Deze grote stijgingen deden zich voor ondanks het feit dat het senior management het instrument het minst effectief vond, en dat zij het grootste begrip vóór gebruik van de tool, en de behoefte om de strategie te begrijpen hebben. Deze toename kan worden toegeschreven aan hun actieve betrokkenheid bij het ontwikkelingsproces.

Het ontwikkelingsproces van de strategiekaart:

Het ontwikkelingsproces van de strategiekaart leverde ook opmerkelijke inzichten en resultaten op. Ten eerste brengt de toepassing van een nieuw strategisch raamwerk voor het analyseren en communiceren van een bestaande strategie inconsistenties aan het licht en identificeert hiaten binnen de bestaande strategie. Dit vergemakkelijkt het verfijnen van de strategie, wat uiteindelijk leidt tot een meer coherente strategie. Ten tweede, door een strategietool als een grensobject te beschouwen en gebruikerservaring interviews uit te voeren, ontstaat de mogelijkheid om inzicht te krijgen in hoe individuen op verschillende organisatieniveaus de strategie waarnemen en ermee omgaan. Door deze verschillende perspectieven in de strategiekaart aan bod te laten komen, kan de communicatie over de strategie veranderen van een traditionele top-down benadering in een meer inclusieve en participatieve benadering. Deze verschuiving bevordert een grotere samenhang binnen de strategie en verbetert op zijn beurt het algemene begrip en de afstemming onder werknemers.

### **Conclusies, beperkingen en aanbevelingen:**

Gebaseerd op de waargenomen positieve correlatie tussen de implementatie van de interactieve strategiekaart en het begrip van strategie bij de steekproefgroep, evenals hun waargenomen behoefte aan een dieper begrip van strategie, kan geconcludeerd worden dat het gebruik van een interactieve strategiekaart een waardevol hulpmiddel is voor het verbeteren van strategisch begrip. Deze studie bevestigt dat de strategiekaart het strategisch inzicht verbetert, vooral bij werknemers met beperkte materiekennis over de strategie, zoals het operationele niveau. Actieve betrokkenheid bij de ontwikkeling van de tool draagt ook bij aan een beter strategisch begrip, zoals blijkt bij het senior management. Deze bevinding suggereert dat actieve betrokkenheid bij het implementatieproces van andere strategietools waarschijnlijk vergelijkbare voordelen zou opleveren.

Bovendien dient het ontwikkelingsproces van de tool ook als een effectief middel om het strategisch inzicht te versterken. Het gebruik van een alternatief strategisch raamwerk om een strategie te analyseren die ontwikkeld is met behulp van een ander raamwerk, blijkt effectief in het blootleggen van hiaten en inconsistenties binnen de bestaande strategie. Dit verbetert niet alleen de samenhang van de strategie-inhoud, maar versterkt ook de perceptie van medewerkers dat ze de strategie beter moeten begrijpen. Dit effect is vooral uitgesproken bij het senior management, dat de verantwoordelijkheid draagt voor de strategieontwikkeling. Hoewel dit onderzoek zich richt op de ontwikkeling van een strategiekaart, is het redelijk om te concluderen dat het toepassen van een vergelijkbaar proces met alternatieve strategietools vergelijkbare mogelijkheden zou opleveren voor het identificeren van inconsistenties en het verbeteren van de strategische coherentie.

Bovendien biedt het beschouwen van een strategietool als een grensobject en het houden van gebruikerservaring interviews het vooruitzicht om feedback van verschillende hiërarchische niveaus te integreren. Door inzicht te krijgen in hoe elk organisatieniveau omgaat met en prioriteit geeft aan elementen van de strategie en door te onderzoeken hoe strategie wordt waargenomen en begrepen vanuit een bottom-up perspectief, kunnen organisaties waardevolle feedback integreren. Dit proces leidt uiteindelijk tot een meer samenhangende strategie en verbetert het algemene strategische inzicht.

De volgende primaire beperkingen bestaan binnen dit onderzoek. De afwezigheid van een controlegroep, die niet betrokken was bij het ontwikkelingsproces van de strategiekaart, maakt het moeilijk om de invloed van betrokkenheid bij de ontwikkeling van de tool te scheiden van de impact van de tool. Dit onderzoek werd uitgevoerd binnen één business unit van een gediversifieerde organisatie, wat de directe toepasbaarheid van de resultaten op andere



gediversifieerde organisaties beperkt. Door de kleine steekproefomvang zijn de resultaten van de kwantitatieve vragenlijst niet statistisch significant en daarom zijn ze kwalitatief beschreven.

Aanbevelingen voor de praktijk zijn ten eerste om strategieontwikkeling af te stemmen op het raamwerk van de strategiekaart en een strategiekaart te implementeren. Ten tweede is het essentieel om een instrument voor strategiecommunicatie consequent te integreren in regelmatige voortgangsbijeenkomsten die gericht zijn op strategie. Deze voortdurende integratie zal effectieve communicatie van strategische initiatieven in de loop van de tijd vergemakkelijken. Ten derde moet het middenmanagement actief deelnemen aan het strategieontwikkelingsproces. Dit maakt de integratie van diverse projecten en programma's in de overkoepelende strategie mogelijk, wat de relevantie en toepasbaarheid ervan op verschillende afdelingen en niveaus vergroot.

Aanbevelingen voor toekomstig onderzoek zijn ten eerste om de steekproefomvang voor kwantitatieve analyse uit te breiden en een steekproefgroep op te nemen die niet betrokken is bij de ontwikkeling van het hulpmiddel. Hierdoor kunnen onderzoekers de impact van een hulpmiddel kwantitatief meten en analyseren met een grotere statistische significantie en kunnen ze de analyse van de effecten van het hulpmiddel zelf scheiden van de invloed van het proces. Ten tweede, om de generaliseerbaarheid en validiteit van de onderzoeksbevindingen te verbeteren, moeten gelijkaardige studies worden uitgevoerd in verschillende organisaties. Deze vergelijkende onderzoeksaanpak zal helpen beoordelen hoe hetzelfde strategiecommunicatie-instrument en dezelfde processen presteren in verschillende organisatorische contexten, wat waardevolle inzichten oplevert voor zowel praktijkmensen als onderzoekers.

## 1. Introduction

### 1.1 Research background

In the field of organizational management, strategy development and execution are paramount to an organization achieving a competitive advantage. Strategy is comprised of the integration of goals, policies, and action sequences that an organization uses to achieve this competitive advantage (Quinn, 2003). However, these components of strategies are frequently too vague and broad to be efficiently executed or are not communicated effectively to the organization. Consequently, this leads to employees lacking a clear understanding of their strategic responsibilities and how their individual roles align with the broader strategy. This disconnect diminishes the advantageous effects that a well-defined strategy can bring to enhance the organization's competitive edge (Mukherjee, 2019).

Strategies are developed according to the strategy process which can be separated into development, implementation, and evaluation. Each phase is typically managed by a different level within the organization. Depending on the organization type, strategy is developed and executed differently. However, large corporate organizations are predominantly governed by the "traditional" hierarchical governance model (Boeger & Villiers, 2018). This hierarchy can be subdivided into the three management levels of senior, middle, and operational management (Too & Weaver, 2014). Within the strategy process, senior management is responsible for strategy development and communication, middle management is responsible for strategy execution, and operational management is responsible for the daily tasks related to the strategy. This top-down approach where senior management develops and communicates the strategy to the rest of the organization neglects how the lower levels digest and incorporate the strategy into their daily tasks. According to Floyd (2000) the conflict that results from the "strategic roles" within the levels of the organization is a primary source of misalignment to the strategy.

The concept of strategic alignment states that aligning business processes from upper management to lower management and vice-versa improves efficiency and therefore improves the organization's performance (Henderson & Venkatraman, 1989). This was confirmed in a study by Joshi et al. (2003) who found that manufacturing plants performed better when the general managers and manufacturing managers agreed on strategic priorities. The alternative therefore is that misalignment of strategic goals hinders an organization's performance. Strategic alignment consists of first creating an understanding through efficient communication and secondly establishing agreement through incentives (Kaplan & Norton, 2000). Strategic alignment can therefore be divided into the components of 1) understanding and 2) agreement of organization's strategic goals. It can therefore be inferred that increasing strategic understanding, a component of strategic alignment, will positively affect strategic alignment and thus in turn improve organizational performance. This is in line with Kaplan & Norton (2000), who stated that the key to executing a successful strategy is communicating the strategy in a way that the organization understands.

Within each of the phases of the strategic process, various "strategy tools" exist that assist with the tasks and requirements of the phase. Wright (2013) defines a strategy tool as a heuristic device that is designed to aid, guide, and inform managerial thinking. Vuorinen (2018) conducted a review of literature which introduces tools that aid strategizing. The paper identified 88 strategy tools and subdivided these into strategy development (48 tools), strategy action (37 tools) and strategy adaptation (3 tools). These tools were then further divided into the focus levels of internal, external, and fit. Focussing on the key role of effective communication of strategy, to increase strategy understanding and therefore drive organizational

performance, Vuorinen (2018) classified two strategy tools with the definition of “translating strategy to operations with an internal perspective”. These two tools are the balanced scorecard (BSC) and the strategy map.

Looking into these two strategy communication tools mentioned by Vuorinen (2018), the BSC is a tool that creates strategies according to four perspectives of financial, customer, internal processes and learning and growth (Kaplan & Norton, 1996). The usefulness of the tool is in its ability to act as a performance management tool as it allocates measurable key performance indicators (KPI) to each of the action items within the four perspectives. Decoene and Bruggeman (2006) researched the influence of the BSC on strategic alignment and motivation within middle managers. The paper created a theoretical model that stated that the BSC should increase strategic alignment and therefore increase the organizations performance. A limitation of their research though was that it did not objectively measure the change in motivation and alignment within the organization, and only focused on middle management. They recommend that future research make use of a survey questionnaire within case studies to test this relationship and include managers in the development process of the BSC to increase alignment.

The strategy map is a visual tool that is based off the BSC (Kaplan & Norton, 2000). It visually represents the BSC according to the four perspectives and creates causal links between the action items which shows how each item links to the overall strategy. However, as mentioned by Armstrong (2019) and Lueg (2015), existing research into strategy maps only focuses on top management and does not address the other organizational levels. Additionally, existing research has only focused on how the tool should be used and does not address how the tool is used in practice or how effective the tool is at communicating strategy. Furthermore, strategy maps research has been focused on the industries of IT, manufacturing (Decoene, 2006), supply chain (Perez-Franco, 2010). There is therefore a lack of research into strategy maps specifically related to construction consultancies (Lueg R. C., 2013).

Linking strategic communication and understanding to strategy tools, Spee (2009) mentioned that strategy tools can be used to overcome various boundaries that exist within an organization, such as the vertical hierarchical boundaries between organizational levels and the horizontal boundaries that exist between business lines or different projects. The research on strategy tools as boundary objects states that to understand how a strategy tool can be used to overcome these boundaries and increase strategy understanding, the researcher must understand how users interact with strategy tools and what purposes they use them for. Understanding strategy tools as boundary objects can therefore also address the role conflict which Floyd (2000) mentions is a primary source of misalignment. This aligns with the recommendation of Vuorinen (2018) who mention that a major weakness of strategy tools is a lack of empirical evidence on the usefulness of these tools, and recommends that future research into strategy tools look into how the tools are used in practice, how the tools are developed, and provide evidence of the usefulness of the tools.

Finally, AECOM Benelux, uses yearly “Pulse Surveys” to measure employees’ understanding of the organization’s strategy, and whether they understand how their daily tasks contribute to the overall strategy. Year-on-year there has been no significant increase in strategic understanding of employees, and the organization could therefore benefit from a tool that can internally communicate high level strategies throughout the organization. This opportunity renders AECOM Benelux a good case study organization for the research.

Considering this context, a critical research gap emerges. Research that addresses how a strategy map is developed, interacted with in practice by employees across the organizational hierarchy, and how effective the strategy map is at communicating strategy is limited.

## 1.2 Problem statement

A strategy communication tool, such as the BSC or strategy map, is designed to increase employees' understanding of business strategy. This increase in strategic understanding may in turn increase strategic alignment and therefore improve organizational performance.

While the BSC and strategy map have emerged as popular tools to communicate strategy, a lack of research exists that measures the usefulness of these tools for increasing understanding (Vuorinen, 2018). This aligns with the literature on strategy tools as boundary objects, which mentions that information on how strategy tools are used in practice, and how they can be used to overcome organizational boundaries is limited (Spee, 2009).

Furthermore, Armstrong (2019) and Lueg (2015) mention that existing research into strategy maps only focuses on top management and does not address the influence of the other organizational levels. There is therefore a need to understand how a strategy communication tool is interacted with in practice throughout the organizational hierarchy, and what influence this interaction has on an employees' level of strategic understanding.

Moreover, Decoene and Bruggeman (2006) recommended that future research into the usefulness of strategy tools make use of a case study and questionnaires to measure the tools effectiveness. AECOM Benelux, surfaces as an appropriated case study for the research as they have seen no change in employees' understanding of business strategy over time and is therefore interested in how it can communicate its strategy effectively throughout the various organizational levels. The organization does not utilize the strategy map or BSC as a central strategy communication tool and implementing one of these tools may assist the organization with increasing its overall level of strategic understanding.

The problem statement can be summarized as:

*“Information on how users from different organizational levels interact with a strategy communication tool, and it's influence on their understanding of strategy remains unclear.”*

## 1.3 Research objective

The purpose of this research is therefore to develop a strategy communication tool for the case study, to research how employees from different levels in the organization interact with the tool, and to analyse what influence this has on their level of strategic understanding.

To achieve this a qualitative approach was used to analyse both qualitative and quantitative data. Research through design principles were used to develop the tool, which included user interaction interviews to qualitatively research how the tool is used by participants from various levels in the organization. Quantitative data was gained through Likert-scale questionnaires which measured the change in strategic understanding from before and after the use of the tool. This quantitative data was described qualitatively using a descriptive analysis. Additional qualitative research was conducted through including open-ended questions in the pre and post questionnaire to substantiate the quantitative data.

The research is therefore applicable to scholarly research and literature that is interested in the qualitative and quantitative influence of a strategy communication tool on strategy understanding. It includes information on how an interactive strategy tool is developed, how users interact with a strategy tool, and how this influences their strategic understanding.

Furthermore, the research is applicable to organizations or other researchers interested in developing an interactive strategy communication tool, as it includes a stepwise methodology that was used to develop the tool.

## 1.4 Research question

The problem statement and research objectives prompt the primary research question of:

*"How does interacting with a strategy communication tool influence an employee's understanding of business strategy?"*

This research question is divided into the following sub-research questions which guide the structure of the report, as discussed in section 1.5.

### Sub-questions:

SQ1: "What is strategic alignment, and why is it necessary for an employee to understand business strategy?"

SQ2: "What tools exist to improve employees' understanding of strategy, and how can an interactive strategy communication tool be developed?"

SQ3: "How is strategy currently developed and communicated in the organization?"

SQ4: "How do users from the different organizational levels interact with the tool?"

SQ5: "To what extent does interaction with the tool change an employee's understanding?"

## 1.5 Structure of the report

A schematic of the research structure is shown in Figure 3. The research begins with an introduction that states the context of the research, identifies the problem statement, and sets the research objectives and research questions. Chapter 2. elaborates on the qualitative research methodology. The literature review in chapter 3. address sub questions SQ1 and SQ2. Chapter 4. researches the case study's strategic process and the existing methods of strategy communication, and thereby addresses sub question SQ3. The interactive tool's development process is documented in chapter 5. Chapter 1. contains the results from the pre and post questionnaires, as well as the results from the user interaction interviews. The relevance of the results is then discussed in chapter 7. This chapter therefore addresses sub questions SQ 4 and SQ 5. The report then concludes in chapter 8. responding to the research questions and provides limitations and recommendations of the research in chapters 9 and 9.

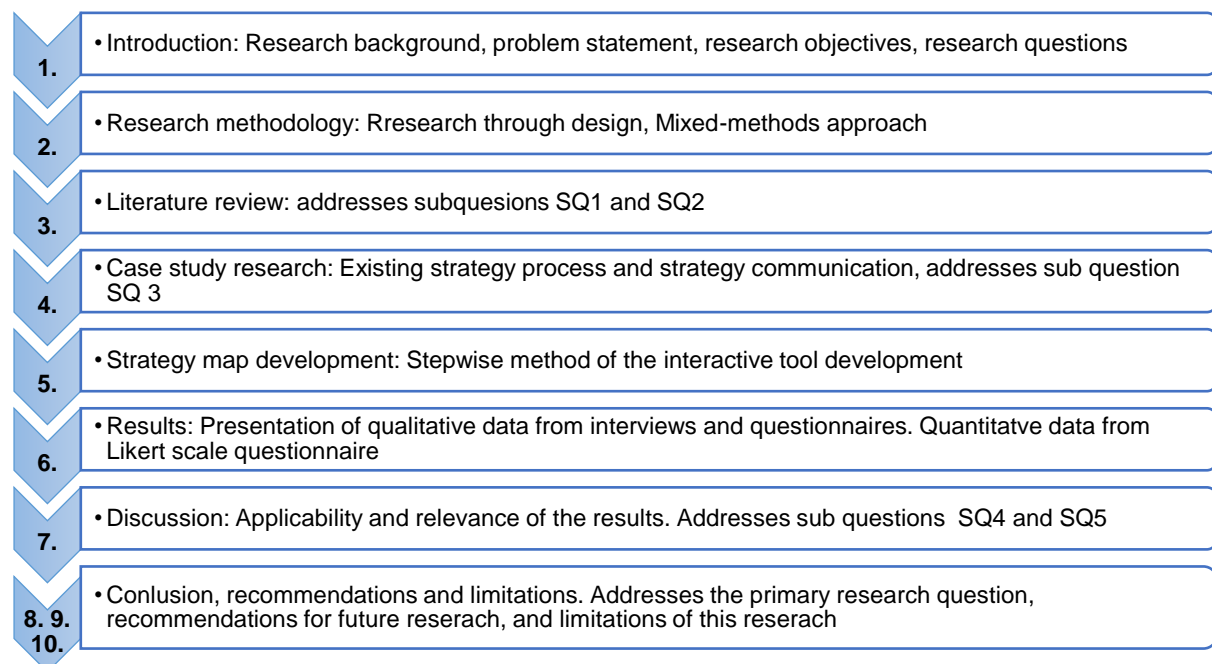


Figure 3: Schematic Report structure

## 2. Research Methodology

The objective of this research is to develop an interactive strategy map, analyse how it is interacted with by employees from different organizational levels, and to measure how this interaction influences employees understanding of strategy. To meet these objectives the methodologies used were: a literature review to understand the research context; research through design principles to develop the tool; and a qualitative approach to measure the tool's influence on strategic understanding. The applications of these methodologies are elaborated on below, and a schematic overview of the research methodology is shown in Figure 4.

The research sample group consisted of eight employees from a diversified business line within the organization. The sample group consisted of three managers on the operational level, three managers on the middle management level, and two managers on the senior strategic level. Furthermore, each of the participants differed in either the discipline in which they worked, or the project or programme they worked on. This ensured a broad range of perspectives in the feedback and development process. Additionally, the business line selected for the research represents approximately 60% of the organization's employees, and the business line's strategy closely reflects the overall corporate strategy. The sample group therefore closely represents the broader organization, and the results can consequently be used to infer results onto the rest of the organization, or other similar organizations. The research can accordingly be classified as making use of an inductive approach.

### 2.1 Literature review

A literature review was conducted first to gain an understanding on the research context. The literature review aimed to address sub research questions SQ 1 and SQ 2. As such, the review first began with an exploration on the theory of organizational strategy, strategic alignment, and strategic understanding. Thereafter the literature review researched why it is necessary for employees throughout the organization to understand strategy. Research was then conducted into which theoretical strategy tools exist for increasing strategic understanding, current research on their effectiveness, and how approaching strategy tools as boundary objects may assist in increasing understanding. Finally, the literature review addressed the process of developing a strategy communication tool. The review is classified as a deductive approach as it makes use of theory to develop a conceptual framework that states that a strategy communication tool can be used to improve strategy understanding.

### 2.2 Case study review

The case study review addressed sub research question SQ3 *"How does the case study currently develop and communicate strategy?"*. The review therefore researched into the organization's current strategy process, and the methods of strategy communication. The case study review was conducted through reviewing formal business documentation on the strategy process, and through a series of informal interviews with senior management.

### 2.3 Research through design

To conduct the research, an interactive strategy tool had to be developed which could then be used to address the remaining sub research questions. A significant part of the study researched into how users interacted with the tool, and how these interactions can be used to overcome boundaries associated with strategy communication and therefore increase strategy understanding. According to Stappers & Giaccardi (2017), if a study addresses how participants interact with an artifact, it is considered as contextual research, and the result forms part of interaction design. They further define research through design as a research

approach that uses design methods and processes as a form of inquiry. The design methods used to develop the strategy tool in this research were ideation, prototyping, and testing through user interaction interviews. The user interaction interviews allowed for qualitative research into how participants from different levels in the organization used the tool. The results from these interviews could then be used to address sub research question SQ4 *“How do users from the different organizational levels interact with the tool?”*. This qualitative research therefore incorporates the recommendation by Vuorinen (2018) and Spee (2009) who stated the importance of understanding how users interact with strategy tools in practice.

## 2.4 Qualitative research

This research employed a qualitative research approach to analyse qualitative and quantitative data. A qualitative approach of analysis was used due to the size of the sample group not providing statistical relevance of the quantitative data. Quantitative data was gained through Likert scale questions in the questionnaires, and was substantiated with qualitative data gained through interviews and open-ended questions in the questionnaires .

Keyson (2009) proposed that including a formal measurement as part of research through design validates and strengthens the robustness and generalization of the results. Vuorinen (2018) stated the importance of new research into strategy tools to evaluate their usefulness, and Decoene (2006) recommended that future research into strategy tools evaluate the effectiveness of the tool by making use of an objective measurement through a survey within a case study.

To meet these recommendations, the strategy tool’s effectiveness was measured using a 5-point Likert Scale in a pre and post questionnaire before and after interacting with the tool. A 5-point Likert scale was used as it matches the measurement of the yearly “Pulse Survey” the organization utilizes to measure strategy understanding. This provided quantitative data which was described qualitatively using descriptive analysis. Although the quantitative results do not allow for statistical relevance, a numerical indication on the effectiveness of the tool and its influence on strategic understanding was necessary to assist with the analysis. Yin (2003) stated that qualitative interviews allow the researcher to “probe” into quantitative results to gain a deeper understanding of the results. Therefore, to substantiate the quantitative data, open ended questions were included in the questionnaires.

Therefore, to address sub research question SQ5 *“What extent does interact with the tool change an employee’s understanding?”* elements of a sequential mixed-methods approach was used as per (Creswell & Creswell, 2017) in that quantitative data was acquired in addition to qualitative data. However, the focus remained on the qualitative approach.

The results from the questionnaires and interviews were then analysed using descriptive data analysis. The quantitative results from the pre and post questionnaire were compared to analyse the influence that the tool had on strategic understanding, and to measure how effective the tool was. The results from the questionnaire’s open questions, together with the results from the user interaction interviews were used to substantiate and elaborate on the results from the quantitative data. The results from the analysis were then used to conclude how the strategy map influences employees’ understanding, how employees from different organizational levels interacted with the tool, and whether the tool is a potential solution for the organization to increase their strategic understanding.

These results were also used to draw broader conclusions on the influence of the process of developing and implementing strategy tools, as well as what key elements an effective strategy communication tool should possess.

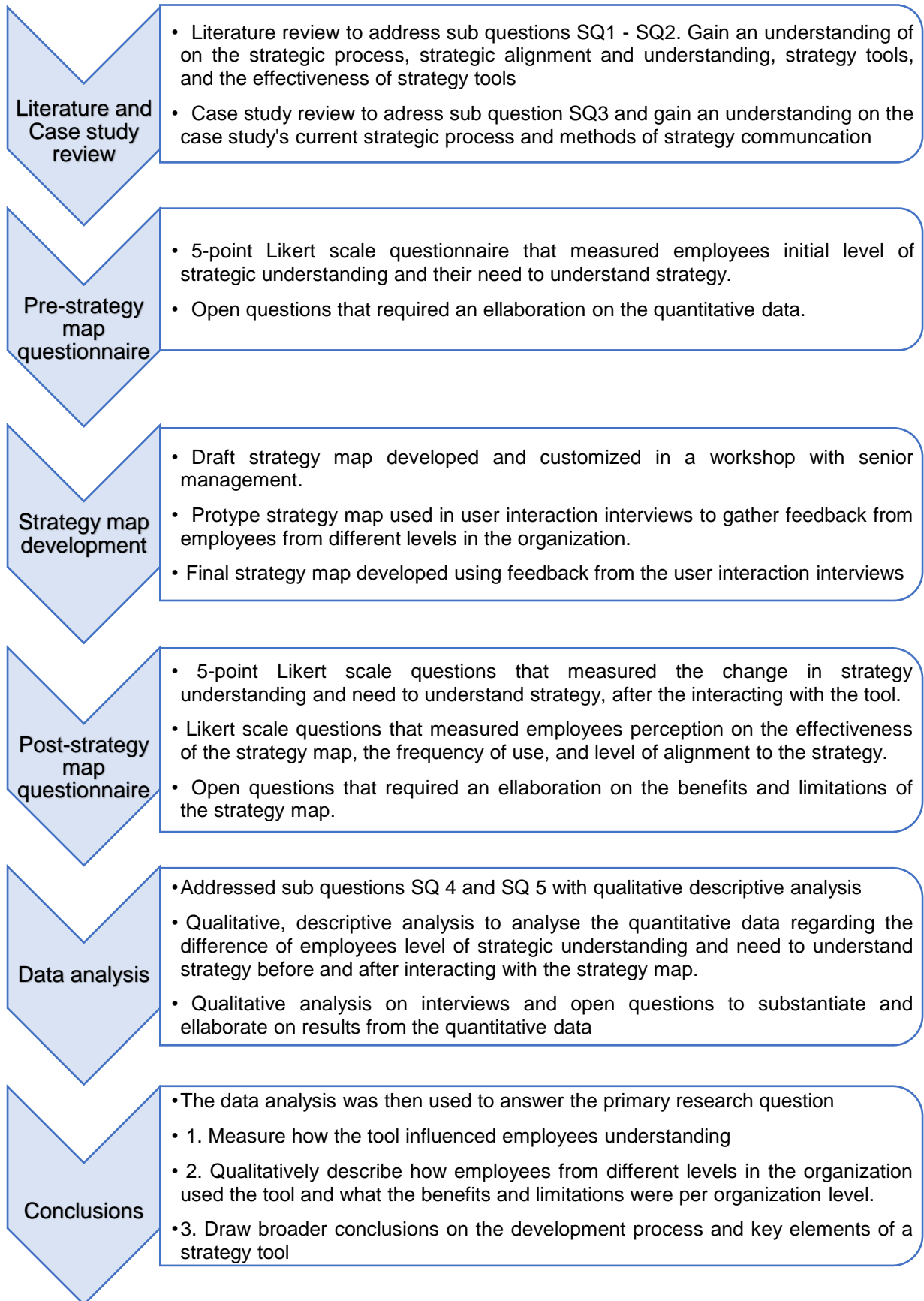


Figure 4: Research methodology overview



### 3. Literature Review

The purpose of this literature review is to address sub questions SQ1 and SQ2, thereby gaining an understanding on the research context, creating a theoretical framework, and substantiate the selection of an appropriate strategy communication tool to be used for the remainder of the research. The review first covers theory on the concepts of strategy and the strategic process to create a foundation. Thereafter, strategic alignment and strategic understanding as a component of strategic alignment is addressed. This is followed by strategy tools that are applicable to increasing strategy understanding, and current literature on the evaluation of these tools. Finally, the development process of a strategy communication tool is addressed. The review then concludes with a selection of a strategy communication tool for the study, summaries of key theoretical concepts, and gaps in existing research.

#### 3.1 Strategy and the strategic process

##### 3.1.1 Strategy description

According to Quinn (2003) a strategy is “the pattern or plan that integrates an organization's major goals, policies, and action sequences into a cohesive whole.” Furthermore, it is stated that a well formulated strategy assists with gathering and allocating resources into a viable posture based on internal core competencies and internal shortcomings to respond to anticipated changes in the external environment. The primary purpose of a strategy is to establish a competitive advantage over competition. The key terms from the Quinn (2003) definition is that strategy is 1. Goals 2. Policies and 3. Actions, that are formulated and built off 4. Internal strengths 5. Internal Weaknesses 6. Changes in the external environment and 7. Competitors. This definition of strategy is visualized in Figure 5.

The goals within strategy establish the nature of the enterprise in terms of value and organizational objectives and has a description of what needs to be accomplished by when. The strategic goal affects the overall direction of the company, the strategic policies offer the rules and regulations that guide the goals, and the action sequences offer a step-by-step approach at achieving the goal. Finally, Quinn (2003) sets the following criteria for an effective strategy 1. Clear decisive objectives 2. Maintaining the initiative 3. Concentration 4. Flexibility 5. Coordinated and committed leadership 6. Surprise 7. Security.

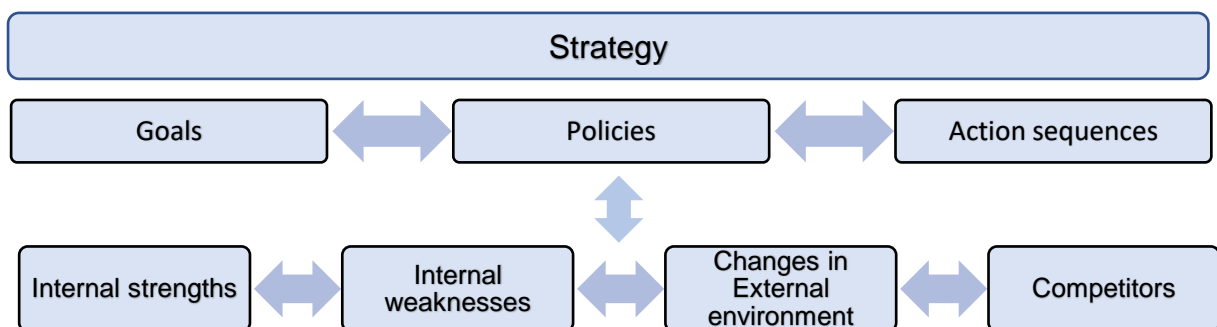


Figure 5: Strategy theory visualization

#### Company structure

According to Mintzberg (2003) a company's organizational structure goes hand-in hand with its strategy. This is due to the importance that understanding the internal capabilities of an organisation has on the strategy process. Furthermore, Mintzberg (2003) elaborates on different “contexts” under which a company can operate, and how these contexts influence and shape the organizational structure. A context is the way the organization is structured,

operates and the services they offer. The paper explains company structure as consisting out of 6 basic elements; 1. the operating core responsible for daily operations 2. The strategic apex responsible for overseeing the entire system 3. The middle line responsible for linking the strategic and operational levels 4. Technostructure perform administrative duties to the primary line 5. Support staff, external employees that assist the organisation 6. Ideology, which us the company's culture. The identified contexts under which an organization can operate are entrepreneurial, professional, mature, diversified, and international contexts.

Considering the nature of the case study organization as a consultancy offering a diverse range of professional services, the contexts relevant to this research are the professional and diversified contexts, as well as the company structures and governance methods associated with these contexts. These contexts are therefore further elaborated on below.

### **Diversified context**

The diversified context occurs when an organization operates in varying industries and offers different services. This context occurs especially due to mergers of companies that offers different services. In this context, the products and services that are offered are diversified which results in a divisional structure. The strategy focus then shifts to two levels; 1, the corporate strategy which guides the overall organization and set of underlying businesses 2. The business strategy which guides the strategy of the individual business unit, where each business unit has its own specific strategy (Mintzberg, 2003). This context is also elaborated on by Porter (2015) who stated that a diversified company operates in more than one industry and that the business level strategy addresses how to compete in a single distinct business. Whereas the corporate strategy explains the portfolio of businesses that the company should be in. Furthermore, Porter (2015) states that ever project and programme is situated within a company strategy and that it is therefore essential to have a clear sense of the corporate and business level strategies to ensure whether a project fits within these strategies.

### **Professional context**

The professional context occurs when an organization is heavily dependent on specialists and experts and operates in a more stable environment. It would be labelled as the "innovation" context if the environment was unstable (Mintzberg, 2003). This context arises when an organization operates within specialist industries such as engineering, law and accounting consulting firms, or hospitals and universities. In a professional context the responsibility for strategy making diffuses throughout the organization and can even occur at the bottom of the hierarchy. This would occur if the organization were highly dependent on the specialists operating the business. Maister (2003) states that a professional services firm (PSF) involves high levels of interaction with a client together with a high degree of customization. Maister (2003) explains that the typical structure of a PSF is hierarchical with Senior being responsible for client relations, middle responsible for project management and junior for operational tasks.

### **Generic strategy types**

These contexts and structures give rise to various types of strategy in addition to the high level corporate strategy and individual business unit strategies. Porter (1980) developed the three generic strategies of cost leadership, differentiation, and focus. Cost leadership offering a cheaper product; differentiation offering multiple different products; focus offering a single product to a high quality.

### 3.1.2 Strategic process

The strategic process is the process by which strategies are developed, implemented, and evaluated. On a broad level, strategy can be developed via 1. deliberate formulation 2. systematic analysis and 3. emergent formation. Deliberate formulation refers to conscious decision making and planning regarding strategy, which can be divided into continuous vs emergent strategy. Continuous strategy occurs when an organization makes incremental improvements over a period through monitoring market conditions and the competitive landscape. Emergent strategy on the other hand is a more flexible and adaptive approach which involves being open to new business opportunities and responsiveness to a changing environment. The primary difference to these two deliberate strategy processes is their approach to change. Systematic strategy analysis results from careful elaboration on a problem or situation, by breaking the problem into a system of issues that can be approached. Lastly, emergent formation occurs when a strategy is developed “naturally” through processes and adapting automatically in response to the external environment (Barad, 2018).

Within the professional and diversified contexts, strategies are predominantly developed through deliberate formulation. These strategies can then be developed through either a prescriptive or descriptive strategic process. A descriptive strategy is a linear process which begins with the development of company mission and objectives, then an external and internal analysis, and finally strategic implementation which leads to a competitive advantage. A prescriptive strategy is a closed loop model which consists of 1. understanding the strategic position (context) 2. assessing strategic choices for the future (content) and 3. managing strategy into action (process) (Mintzberg, 2003).

Vuorinen (2018) classifies the strategy process as cyclical with 1. Architecture (development) 2. Action and 3. Adaptation (evaluation). 1. Architecture deals with strategic analysis and strategy formulation. 2. Action deals with how strategy gets translated to operations and how the activities should be organized and 3. Adaptation deals with monitoring and learning. Similarly, Floyd & Lane (2000), state that strategic renewal (i.e. strategic development) consists of the processes of 1. Competence definition 2. Deployment and 3. Modification. Both of these definitions of the strategic process are in line with the prescriptive strategy definition by Mintzberg (2003), and are visualized in Figure 6. Floyd & Lane (2000) further elaborate on how the roles of top, middle and operating level managers differ within each of these strategic processes. The article states that senior level managers are responsible for strategy development and guiding the organization; middle management is responsible for implementation, evaluation and linking strategy to the daily tasks of the operational team; operational level is responsible for the daily tasks management levels within the organization.

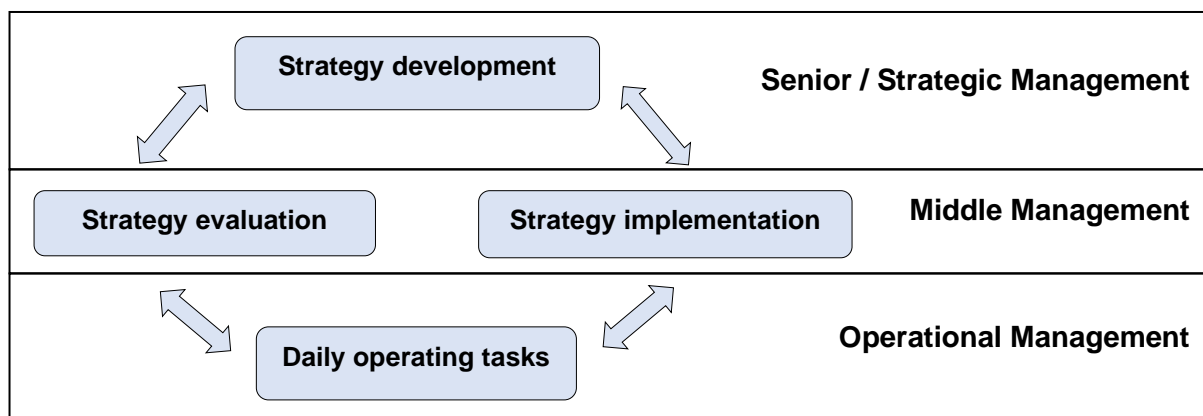


Figure 6: Strategic process and management levels

## **Strategy formulation**

Strategy formulation is the phase in which an organizations strategy is created and focuses on the fit of the internal capabilities of the company to the external situation (Mintzberg, 2003). As stated by Floyd & Lane (2000) the tasks and responsibilities of strategy formulation and communication fall on senior management who are required to act as strategic leaders. Porter (2015) also emphasises the responsibility that senior management has in reiterating and constantly communicating an organizations strategy to the other organizational levels.

Samimi et al. (2022) review and synthesize current literature on how strategic level managers influence organizations. The paper redefines strategic leadership as “the functions performed by individuals at the top levels of an organization (CEOs, TMT members, Directors, General Managers) that are intended to have strategic consequences for the firm.” The review is based off of eight functions that strategic leaders serve, the key attributes of strategic leaders, and the organizational outcomes strategic leaders’ influence. The eight functions of a strategic leader identified by the paper are 1. making strategic decisions 2. engaging with external stakeholders 3. performing human resource management activities 4. motivating and influencing 5. managing information 6. overseeing operations and administration 7. managing social and ethical issues 7. managing conflicting demands.

Tawse et al. (2019) state that the transition from strategy formation to strategy implementation is because thought processes and emotional experience required for strategy formulation is different to what is required for implementation. The paper recommends six “leadership nudges” to aid the transition from formation to implementation. 1. Remove the distraction to plan 2. Develop implementation intentions 3. Use verbal framing 4. Highlight the end game 5. leverage a crisis 6. celebrate small wins.

## **Strategy implementation and evaluation**

Strategy implementation is comprised of a set of activities that are executed to achieve the strategic goal developed during strategy formulation (Mintzberg, 2003). Strategy evaluation is the process by which these activities are analysed to determine whether the goal has been accomplished or not and to what extent. Floyd & Lane (2000) state that middle management is responsible for the tasks and responsibilities within these two strategy phases. Middle management therefore plays the crucial role of linking the corporate and business strategy to the operational team, as well as providing feedback to senior management on how the daily tasks of the operational team contribute to the strategy.

Furthermore, within a diversified organization, Sayles (1993) explains how middle management is essential to linking the various departments and processes and minimizing any burdens that occur from one department to the next. Middle management is therefore also crucial in managing the interfaces that lead to a more efficient operations team and therefore create competitive advantage in this way. An effective middle manager is the link between operations and senior management and can convince senior management to “change established practices, appropriations and jurisdictions”. Sayles (1993) further explains that the role of middle managers can be divided into the four dimensions of 1. Understanding the technology or process 2. Continuous improvement 3. Evaluating trade-offs and 4. People management.

### 3.2 Strategic alignment and strategic understanding

Strategic alignment can refer to either external or internal strategic alignment. External strategic alignment refers to the alignment of the organizations strategy to the opportunities that exist in external markets. Internal strategic alignment refers to the understanding and agreement of strategic goals throughout the organization internally (Mukherjee, 2019). Furthermore, Kaplan & Norton (2004) state the strategic alignment consists out of first creating an awareness and understanding and secondly creating agreement through incentives. They mention that strategic leaders need to first communicate strategy in a way the entire organization can understand, before setting targets and incentives. Strategy understanding as a component of strategic alignment is reaffirmed by Senge (2006) who stated that when employees understand how their role supports the overall strategy, and have a shared vision and purpose, alignment is created which supports broad organizational change. Strategic understanding is therefore a crucial component of strategic alignment.

Henderson & Venkatraman (1999) introduced the concept of strategic alignment to increase the effectiveness of ICT management. Their theory states that increasing strategic alignment increases overall organizational performance. They created a framework and stipulated that strategic alignment occurs when there is a complete linkage between the four domains of Business strategy, Organizational infrastructure and process, IT strategy and IT Infrastructure and processes. Within a diversified company context, the IT component of these domains can be replaced with the business unit strategy and how this aligns with the corporate strategy. The theory developed by Henderson & Venkatraman (1999) stated that increasing strategic alignment would result in an increase of organizational and business performance. This is confirmed in a study conducted by Decoene (2006) who developed a theoretical model that demonstrates how organizational performance increases as strategic alignment increases.

Furthermore, Joshi et al. (2003) conducted a study on manufacturing plants to test whether the manufacturing plants performed better when the general managers and manufacturing managers agreed on strategic priorities. The results of this study found that “certain organizational variables moderate the relationship between alignment of priorities and manufacturing performance” such as effective communication of strategy. Additionally, the research concluded that as the operational level’s understanding of the strategic priorities increased, the performance of those business units also increased.

Finally, Floyd (2000) researched the alignment process between the three levels of an organization toward the implementation of strategic plans, and how conflict arises in the strategic renewal process. The research develops four propositions for strategic role conflict:

1. Middle management are most likely to experience individual strategic role conflict
2. Dynamic environmental conditions result in a higher degree of strategic role conflict
3. Strategic role conflict has a higher possibility of occurring in exchanges within the operational level than in the top management level
4. Strategic role conflict at the senior level is likely an occurrence due to strategic role conflict at the lower levels of the organization.

Organizational controls are stipulated as the primary method of clarifying and aligning these role conflicts, which include controls such as effective communication of the strategy and effective requirements allocated to each role.

Considering the correlation between an increase in strategic alignment with an increase in organizational performance, as well as the role that strategic understanding plays in strategic alignment, it can therefore be inferred that increasing strategic understanding may increase alignment and therefore performance.

### 3.3 Strategy tools for strategy communication and understanding

Within each phase of the strategy process, various strategy tools exist that assist with the tasks related to that phase. According to Wright (2013), a strategy tool is a device that is designed to aid, guide, and inform managerial thinking. Furthermore, Spee (2009) made use of the concept of strategy tools as “boundary objects” and explained how viewing strategic tools as boundary objects can be used to improve communication and coordination among the levels within an organization. According to Spee (2009), boundary objects are tools, methods or processes that are used to improve communication and coordination among different communities, by overcoming the boundaries between these communities. Within an organization, vertical boundaries exist between the hierarchical levels and horizontal boundaries exist between project teams and business units. The research states that viewing strategy tools as boundary objects requires the researcher to research how the tools are used in practice and what purpose different users associate with the tool. By understanding how users use a tool, one can understand how to overcome the organizational boundaries.

Vuorinen (2018) conducted a review of literature which introduce tools that aid strategizing. The paper reviewed 482 article abstracts and 88 full texts, classified the tools, and provided recommendations for the development of new strategy tools. Vuorinen (2018) first classifies the tools according to the strategic phase, i.e., development, implementation, and evaluation, and then further classifies the tools according to external environment, internal organization, and fit between internal and external environment. Refer to Figure 7 for the primary classification of these tools. The tools are then further sub-divided into a secondary classification depending on the purpose and use of the tool. Considering the purpose of this research in studying the influence of a strategy communication tool on internal strategic understanding, the secondary classification of “Translating strategy to operations” – internal, strategic action by Vuorinen (2018) was used. This produces the two potential tools of:

1. Balanced scorecard - Kaplan and Norton (1996) and Irwin (2002)
2. Strategy map by Kaplan and Norton (2004)

These two tools, as well as well as their effectiveness at increasing strategic understanding, are therefore elaborated on in the following sections.

|                            |   | The phase of strategy process  |  |  |
|----------------------------|---|--|--|--|
|                            |   | Strategy architecture (48 tools)   | Strategic action (37 tools)  | Strategy adaptation (3 tools)  |
| The focus of strategy work | <b>Internal</b> (44 tools)<br>(resources, capabilities, processes, culture)           | Tools for analysing internal capabilities, performance, options and feasibility of the strategy (13 tools) e.g. Internal organizational assessment, Offshoring tool, Evaluation of strategic flexibility                             | Tools for defining objectives, measures, initiatives and capabilities and improving internal processes and resource allocation (29 tools) e.g. Business process regeneration, Time-driven activity-based costing, Strategy map | Tools for understanding current performance in terms of resources and processes (2 tools) e.g. Heart of business model, Framework for analysing changes in performance |
|                            | <b>External</b> (21 tools)<br>(macro environment, industry, positioning, competitors) | Tools for analysing the macro-environment, industry, competitors and the level of risk and return of for determining the strategy (18 tools) e.g. CAGE distance framework, Strategy canvas Scenario building, Risk management tools  | Tools for aligning operations to external requirements (2 tools) Framework for strategic accounting, Framework for redesigning the information systems   | Tool for understanding current performance in terms of market factors (1 tool) Sources of revenue statement  |
|                            | <b>Fit</b> (23 tools) (development of the process itself)                             | Tools for analysing the competitive position by integrating external and internal perspectives and tools for facilitating the strategy formulation process itself (17 tools) e.g. SPACE-matrix, Parenting framework Strategy diamond | Tools for improving processes and management related to alliances, partnerships, mergers and stakeholders (6 tools) e.g. Best-fit partner selection matrix, Alliance partner selection tool, Stakeholder management method     | No tools in this category  |

Figure 7: Strategy tools framework (Vuorinen, 2018)

### 3.3.1 Balanced scorecard

The balanced scorecard (BSC) is a strategy tool that aids with the execution and evaluation of strategy. The tool allocates measurable action items to four different “perspectives” and therefore acts as a performance measurement system. The four perspectives are financial, customer relationships, internal processes and learning and growth. Including perspectives other than the traditional financial only perspective offers the opportunity to incorporate intangible assets into the company strategy. The BSC lays the strategy out as a process that can be followed by all employees in an organization and is therefore efficient at communicating high level goals to all organizational levels (Kaplan & Norton, 1996). Lueg (2015) states how the BSC provides a framework for translating strategic objectives into a coherent set of measures and Decoene (2006) mentions how the BSC makes use of a cascading process in which strategy is translated from executive level to functional level. In this way the business unit strategy can be created in a way that supports the corporate strategy.

The primary idea behind the BSC was to add measures to the traditional financial only measures which would incorporate intangible assets into strategic management. Financial measures are typically retrospective measurements, whereas non-financial measures are forward looking focussing on value creation. Each of the perspectives aims to address specific questions about the strategy that assists with the selection of key measurements. These questions and example goals of each of these perspectives are shown in Figure 8.

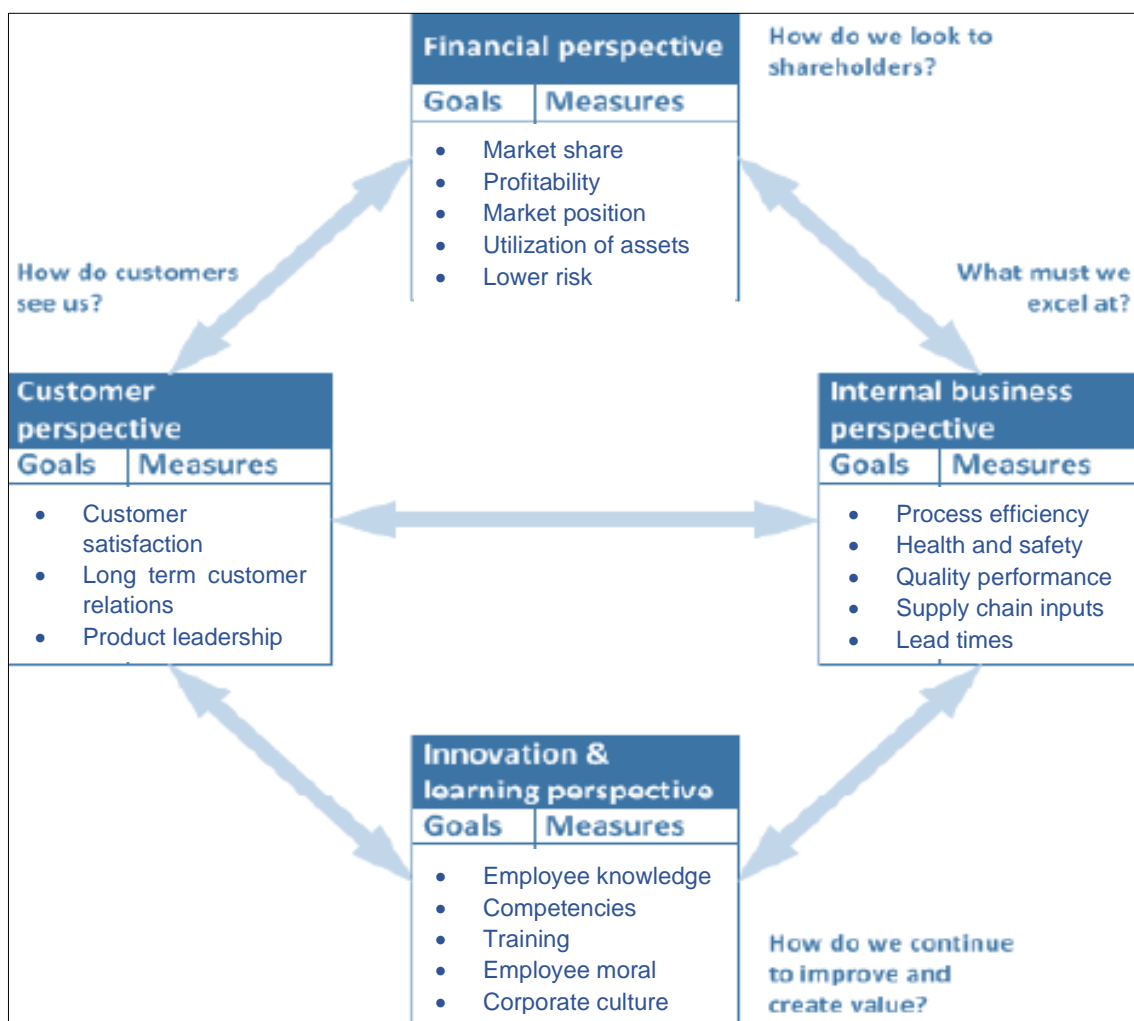


Figure 8: The balanced scorecard (Kaplan & Norton, 1996)

### **The balanced scorecard process**

Kaplan & Norton (1996) elaborate on how the balanced scorecard can be used as a strategic management system. The paper explains that the balanced scorecard makes use of four processes to link short term tasks with long term strategic objectives.

1. Translating the vision
  - a. Agreements need to be made on what performance measurements need to be used and therefore ensure that all managers are aligned.
2. Communicating and linking
  - a. The balanced scorecard can be disseminated down the organization and therefore communicates high level strategies down to individual business units and project teams.
3. Business planning
  - a. By incorporating additional measures to the conventional financial measures, the scorecard aids with ensuring that financial budgets support strategic objectives.
4. Feedback and learning.
  - a. Measurements within the scorecard allow for a feedback mechanism and therefore managers can know whether they are meeting the strategy or not.

There is then the process of creating the BSC, which is closely related to the strategy development process outlined by Quinn (2003). This process starts with exploring the vision of the organization, and from the vision determining strategic outcomes and critical success factors. These success factors are then translated into the measures of the BSC. Finally, strategic initiatives on how these measures will be accomplished are created and the strategic outcomes are elaborated on.

Although the BSC provides a framework of strategy implementation with the four perspectives, Lueg and Carvalho (2013) emphasize the importance of adapting the balanced scorecard depending on the type of organization as well as the needs and goals of the organization. This is in line with Kaplan & Norton (1996), the creators of the BSC, who stipulated that the BSC should only be used as a template and should be adapted. Lueg and Carvalho (2013) identify four areas of adaptation 1. Addition of new perspectives 2. Customizing the existing perspectives 3. Changing the causal relationships between perspectives and 4. Changing the measurement and reporting mechanisms. The paper focuses on modifications to perspectives such as inclusion of IT elements, public sector application and organizational control. The research however does not focus on any industry specific scorecards.

Relevant to the construction industry, Ardi et al. (2019) developed a theoretical performance measurement model for a generic construction consulting service using the balanced scorecard and an analytic network process. The research proposes 21 performance indicators across the 4 balanced scorecard perspectives and found that the top 3 indicators were 1. Improving the work system 2. Maintaining market competitiveness and 3. Employee productivity.



### 3.3.2 Strategy Maps

Kaplan & Norton (2000) state that the key to strategy execution is that the strategy is understood by the entire organization. In response to this, they developed the strategy map in (2004), which visually communicates the performance measurements of the balanced scorecard. Therefore, where the purpose of the BSC is to measure and focus the strategy, the purpose of the strategy map is to translate the strategy into an easily understandable visual format. Strategy maps make use of diagrams and links to create cause and effect chains that explicitly communicate how strategic objectives are linked to one another. The purpose of these causal links is to translate the strategy to various levels within the organization and allow employees to see how their daily work contributes to the overall company strategy. Furthermore, these links allow the identification of any gaps in the strategy that do not contribute to the overarching strategy. Refer to Figure 9 for a visualization of how the strategy map can assist with identifying gaps in the business strategy.

The benefit of the strategy map over the BSC is that it links the BSC to the business and corporate strategies and therefore prevents the scorecard from being just a collection of performance measures (Lueg R. , 2015). It also links the various business units together and aids understanding of how the business unit contributes to the overall strategy. Including the four perspectives of the BSC with causal links to create the strategy map also allows the possibility of showing how intangible assets such as corporate culture contribute to strategic goals. This is especially relevant when considering that Grysberg et al. (2018) states that corporate culture is one of the most important tools available for strategic leadership.

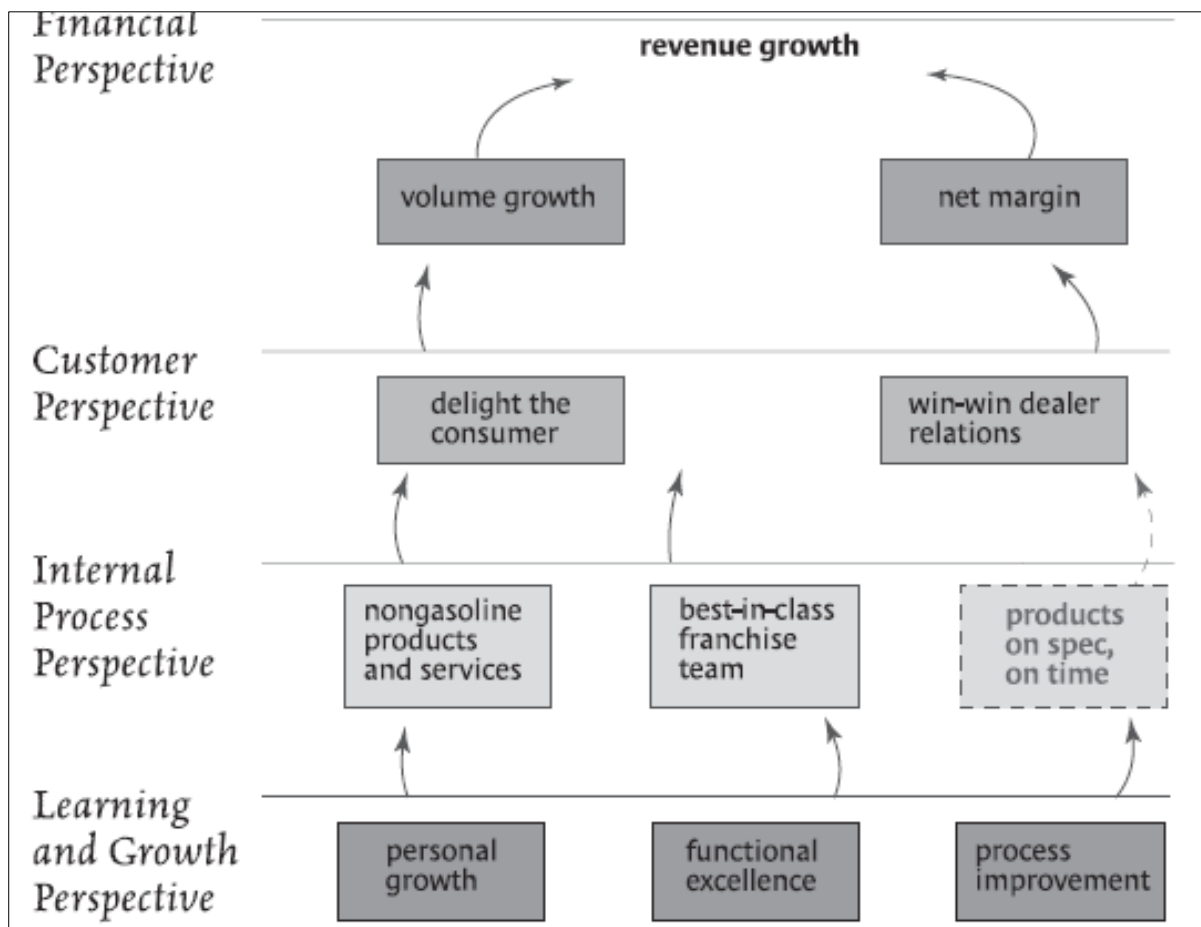


Figure 9: Visualization of the basic strategy map (Kaplan & Norton, 2000)

### The strategy map process

Regarding the creation of a strategy map, Perez-Franco (2010) developed a stepwise method and framework to create a “functional strategy map”. The framework was created for a supply chain strategy and emphasizes that the supply chain strategy needs to align with the business strategy. Refer to Figure 10 for a visualization of this stepwise method and section 3.5 for an elaboration of this method. Although Perez-Franco (2010) created a strategy map for a supply chain strategy, the method and key concepts can be applied to any strategy. Savkin (2014) made use of this stepwise method and key concept of dividing the strategy into strategic themes to create a software that can be used create strategy maps for any organization. Refer to Figure 11 for a sample strategy map created using this software. Finally, in terms of the developmental process of a strategy map, Lueg (2015) states the importance of including middle management in the development of the strategy map and balanced scorecard. Lueg (2015) states that including other management levels in the developmental process leads to a higher level of acceptance of the strategic goals therefore resulting in a higher level of strategic alignment and minimizes the feeling that performance measures are forced upon managers and thus ignored.

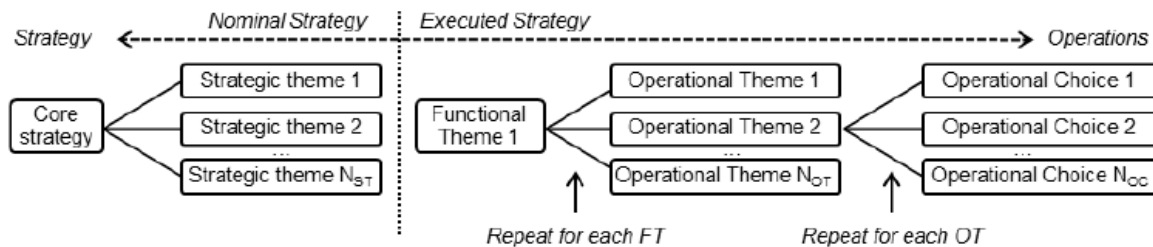


Figure 10: The FSM method to creating a functional strategy map (Perez-Franco, 2010)

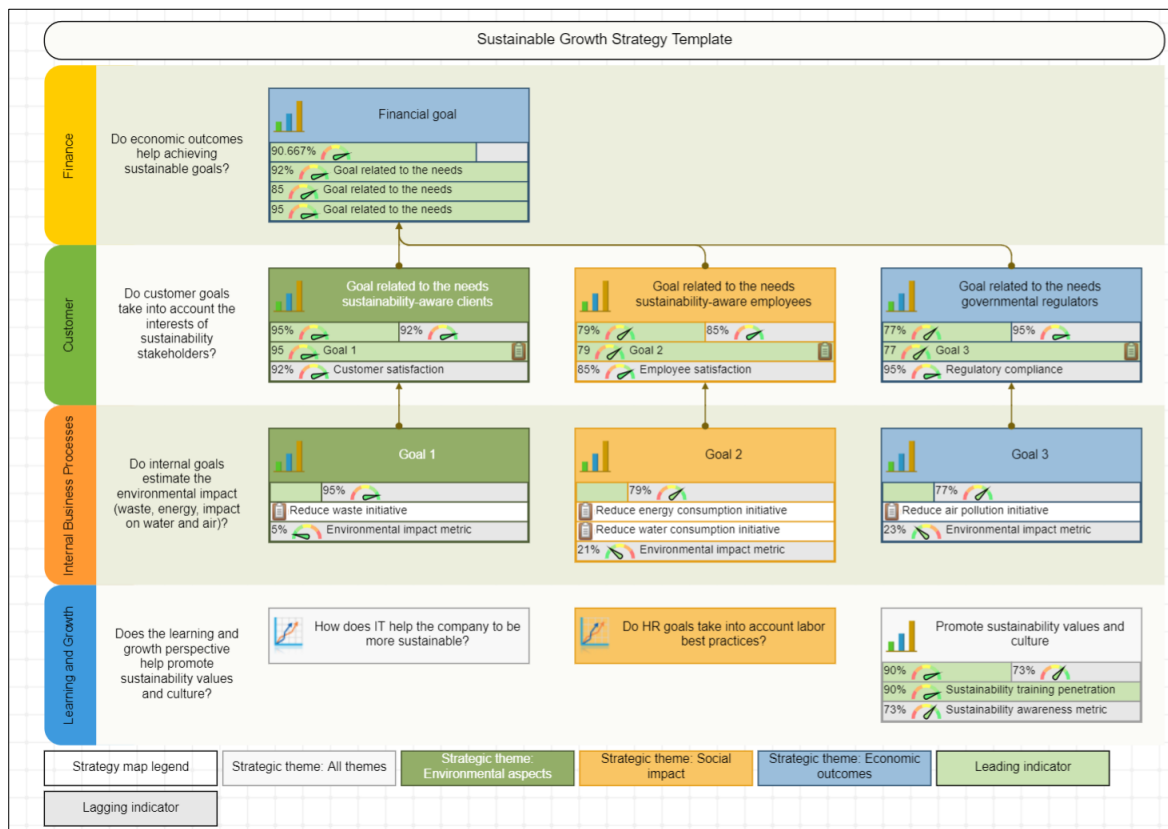


Figure 11: Sample strategy map (Savkin, 2014)

### 3.4 Effectiveness of strategy tools

The effectiveness of strategic management tools can be measured according to a number of different elements such as their contribution to organizational performance, employee motivation, degree of strategic understanding and strategic alignment. When considering the effectiveness of the BSC and Strategy map, Lueg (2015), mentions that most studies focus on the effectiveness of the balanced scorecard, however, only a few focus on the effectiveness of the strategy map. Furthermore, Lueg (2015) states that the study of strategy maps has had a focus on top management and does not include the influence on the other organizational levels. Their research recommends that future research be geared toward obtaining reflections from other employees, who are responsible for daily strategy execution, and whether the balanced scorecard and strategy map are a relevant tool for guiding their work.

Substantiating the position of Lueg (2015), Rigby & Bilodeau (2018) state that since the creation of the BSC, it has become one of the most utilized strategy frameworks used in practice. Following this there has been significant research into the use of the BSC in practice as well as the benefit of the BSC on organizational performance. Geuser & Oyon (2009) conducted an empirical study across 76 business units and found that the BSC has a positive impact on organizational performance. Additionally, they found that the increased performance derives from a better translation of the strategy to the operational team, strategy becomes a continuous process, and a greater level of alignment of processes is achieved. Furthermore, Decoene and Bruggeman (2006) analysed the impact of the BSC on strategic alignment and motivation. The paper first creates a theoretical model based on literature to explain the relationship between the BSC on strategic alignment, motivation and organizational performance and describes a theory case. The theoretical model states that the BSC will increase understanding of strategic requirements from lower management, which will increase strategic alignment and therefore increase organizational performance. This theory was then tested on a case study of a manufacturing company, in which qualitative semi-structured interviews took place. Their case study research found that motivation and alignment from middle management decreased with the BSC. However, the decrease in motivation was explained to be related to the linking the BSC to a compensation plan.

Armstrong (2019) mentioned that the strategy map has failed to realize its full potential to performance management due to a lack of theoretical and conceptual development. The paper researched into the fundamental aspects of the strategy map and offers 12 propositions related to effectively using strategy maps. The paper makes the argument that the strategy map should be considered as a separate tool to the balanced scorecard, rather than relying on the perspectives and measurements set out by the BSC. This research was focussed on developing a generative mechanism behind strategy maps, rather than analysing whether strategy maps “work”. The paper also states that “evidence suggests that the impact of strategy maps for performance management practice remains limited.” Additionally, in the framework of strategy tools created by Vuorinen (2018), it is mentioned that process of development of the tool is rarely described, and that less than one third of the literature provided evidence on whether the tool was useful depending on user experience in case studies. The paper suggests that the lack of empirical evidence on the usefulness of tools is a major weakness in the strategy tools literature, which is substantiated by Spee (2009) who mentioned the importance of researching the purpose that users allocate to a strategy tool.

Considering the significant amount of research into the effectiveness of the BSC, and the lack of research into use and effectiveness of strategy maps, this research selected the strategy map as the strategy communication tool to be researched further. The development of a strategy map is therefore discussed further in the following section.

### 3.5 Strategy map development theory

This section elaborates on the framework and development process of an interactive strategy map. The theory used focuses on the strategy map framework developed by Kaplan & Norton (2004), the step-wise strategy map development process by Perez-Franco (2010), and theory on strategy tools as boundary objects by Spee (2009). The theory from this section is then used together with the case study review from the following chapter to develop the strategy map that is used in the remainder of the research.

Kaplan & Norton (2004) state that the strategy map should describe how intangible assets, such as human capital, drive internal processes which then create value to the customer and finally result in an increase in shareholder value. This process is reflected in the “perspectives” shown on the left of the strategy map template in Figure 12. These perspectives can then be sub-divided into functional themes and then objectives, which are displayed within the map. Furthermore, the theory states that for the strategy to be effective, executives need to identify what the critical processes are that create value to the client, and create the objectives and initiatives around these critical processes. Finally, the importance of customizing the strategy map template depending on an organizations strategy type is emphasised.

The top perspective “Financial” states the final outcome of strategy as financial measures for shareholders such as profitability targets. It is divided into the two functional themes of productivity and growth strategies. The productivity strategy is focused on improving existing processes and the growth strategy is focused on growing into new markets or new processes. The second perspective, “Customer”, elaborates on attributes and services offered to the client in order to attract and retain customers. The “Internal” perspective specifies what internal processes the company needs to exceed in to create value for the customer. Finally, the “Learning and growth” perspective describes what intangible assets are required for the internal processes that create the value to the customers.

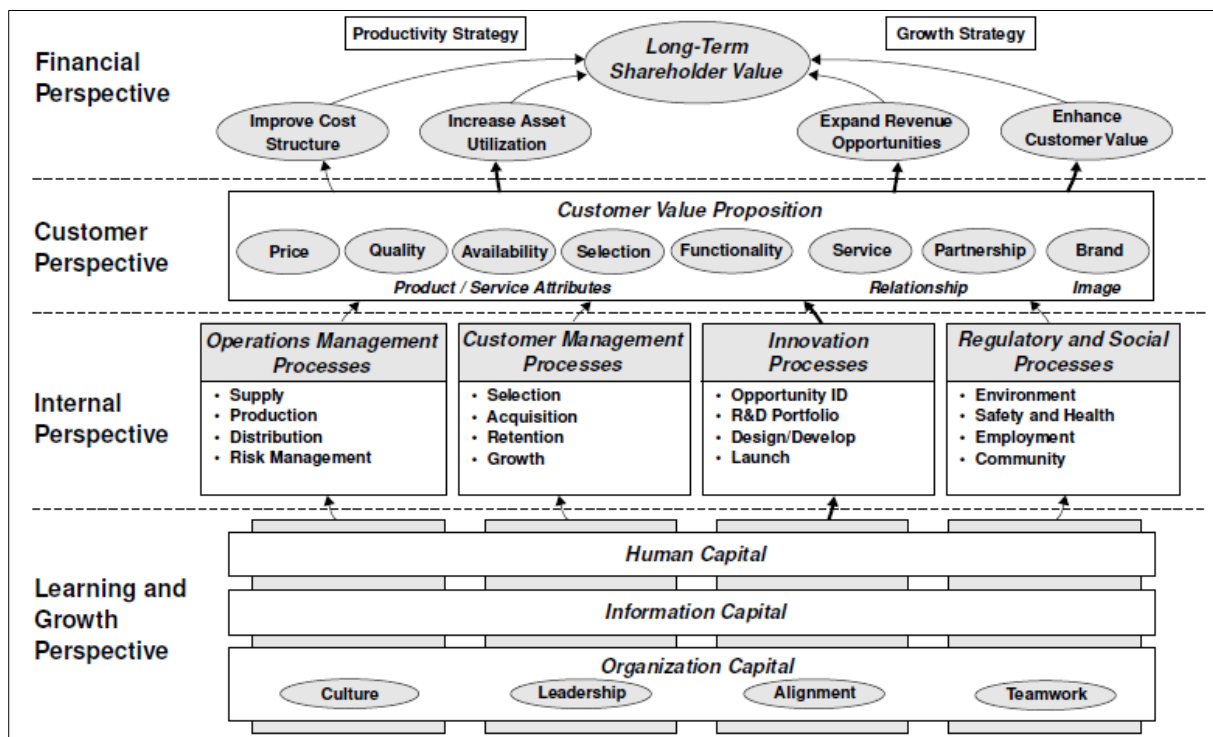


Figure 12: Strategy Map Template (Kaplan & Norton, 2004)

Kaplan & Norton (2004) discuss four types of strategy map templates, depending on the classification of an organization's strategy, and elaborates on the processes that these organizations specialize in. The four strategy map templates are 1. Complete customer solutions 2. Low total cost 3. Product leadership 4. Lock in. "Complete customer solutions" is the strategy in which organizations provide a broad range of services or products and customize these according to the customer's needs. The "Low total cost strategy" revolves around offering highly competitive prices on products and services with a consistent quality, ease and speed of purchase. These organizations are focused on the processes that keep production and delivery costs low. "Product Leadership" is a strategy that is driven by delivering a new innovative product to the market, and as such specializes innovation processes. Finally, the "Lock in" strategy revolves around creating high switching costs for the customer to move to another product or service.

Considering the case study's strategy as being a diversified organization that focuses on offering a broad range of customized services to select key clients its strategy aligns closest to the "Complete customer solutions" strategy. Therefore, the template strategy map for a complete customer solutions strategy as per Kaplan & Norton (2004) is used as the foundation for the development of the strategy map in this research. The template is shown in Figure 13.

To provide the complete solutions service to a client, organization need to offer exceptional service and focus on a high-quality relationship. As such, the processes in the internal perspective reflect this strategy. As demonstrated in Figure 13 The operations management functional theme elaborates on providing a broad range of integrated services, and the customer management functional theme revolves around building strong relationships with the client. Both functional themes match with the case study strategy.

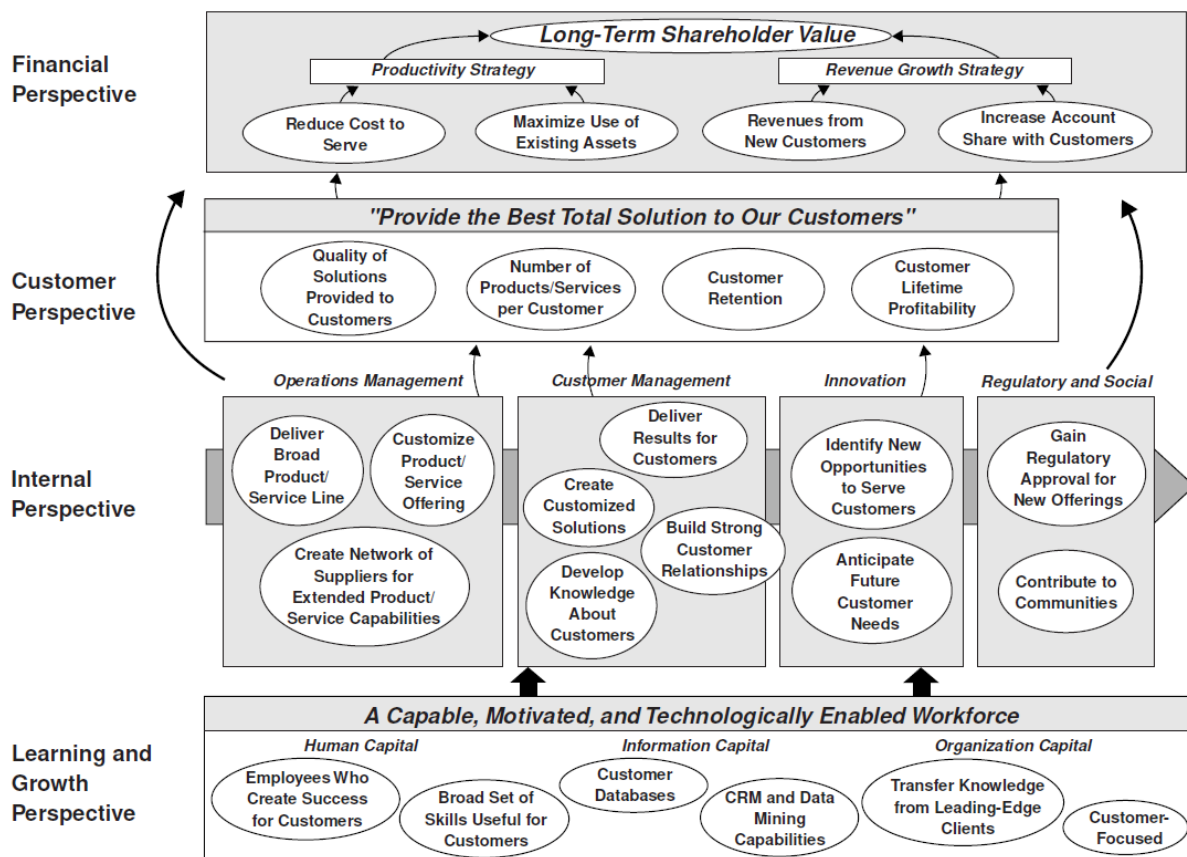


Figure 13: Diversified company strategy map example (Kaplan & Norton, 2004)

The purpose of the strategy map is to visually describes the logic of the strategy by clearly displaying the pillars and related objectives that will create value depending on the organizations specific strategy. The Balanced Scorecard should be used in addition to the strategy map and assigns initiatives, measurements, targets and budgets to the objectives in the strategy map. An example of how the BSC can be included and relate to the strategy map is displayed in Figure 14. According to Kaplan & Norton (2004), for the successful implementation of a strategy, an organization needs to execute a set of measurable initiatives per objective that can be tracked. The BSC is therefore the set of performance measures that accompanies the strategy map and is set up in the following way:

1. Define an objective per perspective. Start on the top perspective and continue it down.
2. Focus on one value proposition and the internal process that is most important to the objective. Example: complete customer solutions focuses on customer processes.
3. Integrate and align initiatives to objectives within the perspectives.

| Strategy Map   |   | Balanced Scorecard   |  | Action Plan   |  |
|--|---|--|--|---|--|
| Process: Operations Management<br>Theme: Ground Turnaround | Objectives  | Measurement  | Target   | Initiative  | Budget   |
| <p>Financial Perspective</p>                               | <ul style="list-style-type: none"> <li>■ Profitability</li> <li>■ Grow revenues</li> <li>■ Fewer planes</li> </ul>  | <ul style="list-style-type: none"> <li>■ Market value</li> <li>■ Seat revenue</li> <li>■ Plane lease cost</li> </ul>   | <ul style="list-style-type: none"> <li>■ 30% CAGR</li> <li>■ 20% CAGR</li> <li>■ 5% CAGR</li> </ul>  |   |  |
| <p>Customer Perspective</p>                                | <ul style="list-style-type: none"> <li>■ Attract and retain more customers</li> <li>■ Flight is on time</li> <li>■ Lowest prices</li> </ul>                         | <ul style="list-style-type: none"> <li>■ # repeat customers</li> <li>■ # customers</li> <li>■ FAA on-time arrival rating</li> <li>■ Customer ranking</li> </ul>                      | <ul style="list-style-type: none"> <li>■ 70%</li> <li>■ Increase 12% annually</li> <li>■ #1</li> <li>■ #1</li> </ul>                                     | <ul style="list-style-type: none"> <li>■ Implement CRM system</li> <li>■ Quality management</li> <li>■ Customer loyalty program</li> </ul>  | <ul style="list-style-type: none"> <li>■ \$XXX</li> <li>■ \$XXX</li> <li>■ \$XXX</li> </ul>                  |
| <p>Internal Perspective</p>                                | <ul style="list-style-type: none"> <li>■ Fast ground turnaround</li> </ul>  | <ul style="list-style-type: none"> <li>■ On-ground time</li> <li>■ On-time departure</li> </ul>  | <ul style="list-style-type: none"> <li>■ 30 minutes</li> <li>■ 90%</li> </ul>  | <ul style="list-style-type: none"> <li>■ Cycle-time optimization</li> </ul>   | <ul style="list-style-type: none"> <li>■ \$XXX</li> </ul>  |
| <p>Learning and Growth Perspective</p>                     | <ul style="list-style-type: none"> <li>■ Develop the necessary skills</li> <li>■ Develop the support system</li> <li>■ Ground crew aligned with strategy</li> </ul> | <ul style="list-style-type: none"> <li>■ Strategic job readiness</li> <li>■ Info system availability</li> <li>■ Strategic awareness</li> <li>■ % ground crew stockholders</li> </ul> | <ul style="list-style-type: none"> <li>■ Yr. 1-70%</li> <li>■ Yr. 3-90%</li> <li>■ Yr. 5-100%</li> <li>■ 100%</li> <li>■ 100%</li> <li>■ 100%</li> </ul> | <ul style="list-style-type: none"> <li>■ Ground crew training</li> <li>■ Crew scheduling system rollout</li> <li>■ Communications program</li> <li>■ Employee Stock Ownership Plan</li> </ul> | <ul style="list-style-type: none"> <li>■ \$XXX</li> <li>■ \$XXX</li> <li>■ \$XXX</li> <li>■ \$XXX</li> </ul> |
|  |   |  |  | <b>Total Budget</b>   | <b>\$XXXX</b>  |

Figure 14: Strategy Map into Balanced Scorecard (Kaplan & Norton, 2004)

The 5-step method and framework created by Perez-Franco (2010) builds on concepts from the Kaplan & Norton (2004) strategy map framework. The 5-step method is a process in which 1<sup>st</sup> the core strategy is developed, 2<sup>nd</sup> strategic themes are assigned to the core strategy, 3<sup>rd</sup> functional themes are assigned to strategic themes, 4<sup>th</sup> operational themes (specific activities and initiatives are assigned) and 5<sup>th</sup> operational choices are allocated (supporting means). This process is visualized in Figure 15. This stepwise method is similar to the Kaplan & Norton (2004) framework, as the core strategy and strategic themes reflect the organizations strategy type, functional themes are present in both frameworks, and pillars, objectives and supporting means are present in both. The primary difference between the two framework is the way in which It is visualized. The Kaplan & Norton (2004) framework is visualized as a map in which the pillars are separated into the four perspectives, whereas the Perez-Franco (2010) framework visualizes the strategy as a process in which all subsequent tasks and themes are linked to the previous.

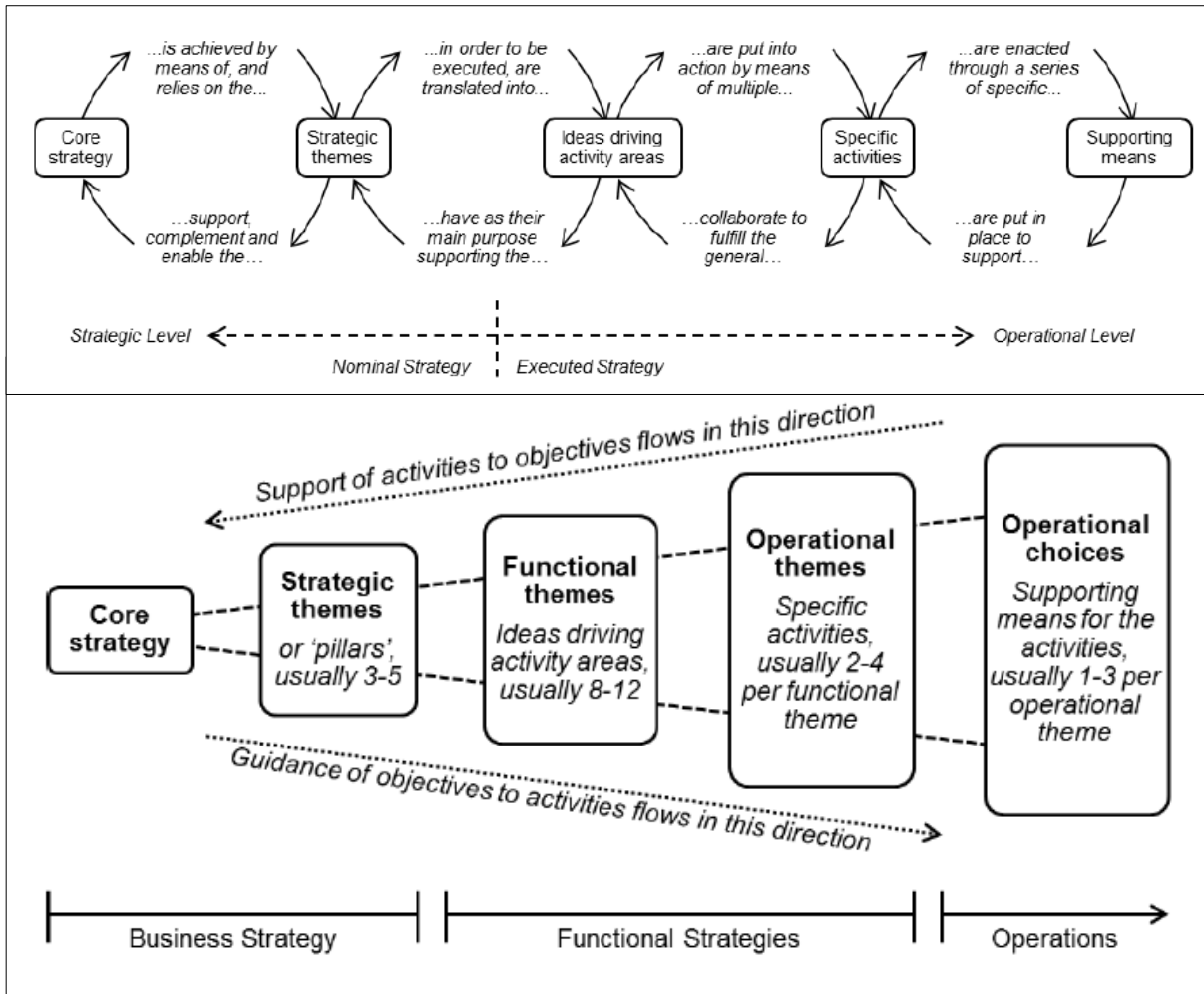


Figure 15: 5-stepwise method to creating functional strategy map (Perez-Franco, 2010)

Spee (2009) proposes how the concept of “strategy tools as boundary objects” can be used to gain a better understanding on how strategy tools can be used to overcome boundaries within an organization. The key idea in the paper is that boundary objects allow interaction across various boundaries and that considering strategy tools as boundary objects creates the opportunity to analyse how a tool can be used to overcome the boundaries associated with organizational hierarchy and across various business units. Furthermore, the paper states that there is extensive information on how strategy tools should be used, however, that there are very few insights on how these tools are used in practice and what the consequences are.

The argument by Spee (2009) is that different users interact with tools in different ways and for different reasons. Therefore, a focus should be given to how individuals interact with a tool, as well as what happens when the individuals interact with the tool. This would provide more insight into what purpose the tool is used for by different individuals as well as how they use it. Gaining an understanding of how individuals from different organizational levels and business units interact with a tool assists with revealing the boundaries in the organization and allows the opportunity to overcome complications in information sharing usually associated with communication tools.

### 3.5 Literature review conclusion

The literature review aimed to address sub-questions SQ1 "What is strategic alignment, and why is it necessary for an employee to understand business strategy?" and SQ2: "What tools exist to improve employees' understanding of strategy, and how can an interactive strategy communication tool be developed?". The relevant literature to these questions is summarized below to develop the theoretical framework of this research.

Strategy is a plan that organizations use to achieve competitive advantage. It consists of an organization's goals, policies, actions, and is built on internal strengths, weaknesses, changes in the external environment and competitors. Strategic alignment is a concept introduced by Henderson & Venkatraman (1999), who mentioned that aligning the four domains of business strategy, organizational infrastructure, IT strategy and IT Infrastructure, will result in an increase in organizational performance. This view was substantiated in a theoretical framework developed by Decoene and Bruggeman (2006). Strategic alignment can occur either externally when an organization aligns to external market environments, or internally when intra organizational units understand and agree on strategic priorities (Mukherjee, 2019).

Kaplan & Norton (2004) mentioned that strategic alignment occurs when firstly an awareness and understanding of strategy is created, and then agreement on strategic priorities is reached. This was reaffirmed by Senge (2006) who stated that when employees understand strategy and a shared vision and purpose, then strategic alignment is created. Strategic alignment can therefore be separated into strategic understanding and strategic agreement. It can be inferred that when an employee has a better understanding of organizational strategy, then overall strategic alignment may increase, which in turn will increase organizational performance.

Within each phase of the strategic development process, various tools exist that aid the tasks associated with the phase. Vuorinen (2018), conducted a review of strategy tools and classified them according to the phase in the process and the type of alignment. The tools the paper identified under theme of internal communication to increase strategy understanding were the balanced scorecard (BSC) and the strategy map. Rigby & Bilodeau (2018) mention that the BSC has become one of the most utilized strategy tools in practice. As such, vast literature sources show the effectiveness of the BSC in increasing strategic alignment (Geuser & Oyon, 2009). However, as mentioned by Armstrong (2019) and Lueg (2015) there has not been a focus on the strategy map's effectiveness, and that existing research on the strategy map focuses on top management and does not address the other organizational levels.

Kaplan & Norton (2004) developed the strategy map framework. Their framework was used by Perez-Franco (2010) to develop a stepwise method to creating a strategy map for supply chains. Although these frameworks describe the development process relevant to particular industries, they do not address the tools effectiveness or how users interact with the tools. This relates to the recommendation of Vuorinen (2018) who mentions that future studies addressing strategy tools should describe the development process and the practical use of the tool. Finally, this perspective is substantiated by Spee (2009), who states that observing how users interact with strategy tools may help overcome boundaries associated with these tools and therefore increase their applicability.

To address these theoretical gaps, this research makes use of the strategy map as strategy communication tool to be researched further. The following step therefore is to analyse the case study's current strategy and communication tools, and how the strategy map can be used to increase the organization's strategic understanding, which is addressed in the following chapter. Thereafter, the development process of the strategy map is discussed.



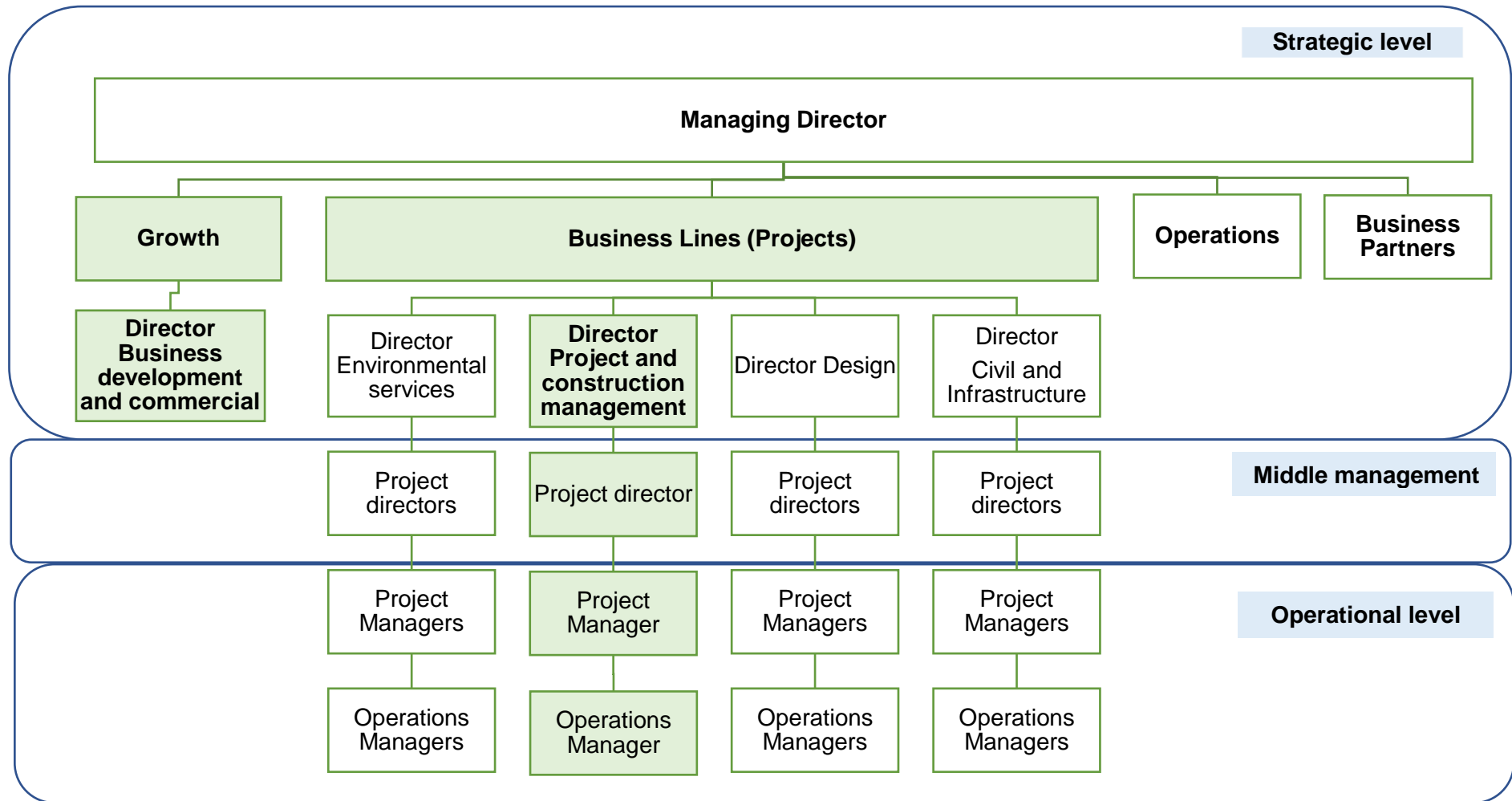
## 4. Case study review

This chapter aims to address sub-research question SQ3: *“How is strategy currently developed and communicated in the organization?”*. Through the process of answering this, links can be drawn to the strategy map framework and the fit of the strategy map to the organization can be analysed. This chapter begins with a classification of the case study organization using the relevant theory from the literature review. It then elaborates on the case study’s strategy development process and current methods of strategy communication. The chapter then concludes by answering the sub research question and proposing the next step.

This research uses a diversified business unit within AECOM Benelux as a case study for researching the influence of a strategy map. The focus of this research is the PMCM (Project and Construction Management) business unit. This business unit consists of 120 employees and comprises approximately 60% of the staff of AECOM Benelux. This business unit is also diversified in its operations and therefore represents the overall corporate strategy of AECOM Benelux and AECOM international. Refer to Figure 16 for a visual overview of the governance model of AECOM Benelux, divided into the three management levels, and highlighting the case study business unit and relevant supporting roles.

AECOM International is a large engineering consultancy that operates in 48 countries and offers a range of diverse consulting services in different industries, such as construction management, project management, and environmental consulting services. AECOM Benelux is a regional division of AECOM International and operates in Netherlands, Belgium, Luxembourg, and France. This regional division consists of 4 diverse business units as well as 3 additional management lines that serve as supporting roles in the organization. Considering the global scale under which the organization operates, as well as the various business units within the organization, the strategy process occurs at various organizational, geographic, and business unit levels. These various levels of strategy formation and implementation lead to multiple interfaces and possibilities where the strategy may not be consistent throughout the organization. Using the Mintzberg (2003) classification of the “contexts” under which an organization operates, AECOM Benelux can be classified as both a diversified and a professional services firm, as they offer a range of diverse specialist services across various industries. The diverse composition of AECOM is also due to mergers of smaller companies, which according to Mintzberg is a primary reason for the establishment of a diversified company. Furthermore, Mintzberg (2003) states that within a diversified firm, a corporate strategy should be used to guide the strategies of the individual business unit strategies, referred to as business strategy.

AECOM is based on a hierarchical form of governance with clear reporting lines. This clear hierarchy makes it easy to distinguish between the strategic, middle, and operational management levels. AECOM Benelux began focusing on strategy development and implementation five years prior to the start of this research. The structures and tools for strategy implementation are therefore still in development which offers the opportunity to recommend tools, processes, and methods to improve the organization’s strategic understanding. The combination of various geographic strategic development levels, diverse business lines and hierarchical governance make it an interesting case study for this research, as these offer multiple “boundaries” to effective strategy communication. The organizational structure also reflects the structure associated with a diversified company as per Mintzberg (2003) and can be classified as such. The business lines of environmental, PMCM, design, and civil and infrastructure can be divided into the levels of senior, middle, and operational and act as the “strategic core”. Whereas the growth and operations lines serve as the technostructure that supports the core, and the business partners line acts as support staff.



Case study sample group

Figure 16: AECOM Benelux hierarchy division

#### 4.1 Case study strategic process

AECOM Benelux' strategic process consists of a proactive and planned approach to achieving the organization's goals. The strategic process is a top-down approach where global strategy guides regional strategies, and top management defines strategic goals and objectives which guides the initiatives and plans of action of specific business units. The strategy development cycle lasts approximately half a year and is then implemented for the start of the company's financial year. Using the Mintzberg (2003) classification, this strategy process can be described as a deliberate strategy development approach. An overview of the company strategy process is shown in Figure 17, and elaborated on below. This research utilized the strategy map's theoretical framework to analyse the previous fiscal years' strategy. This was then used to make recommendations for the following years strategy process.

The vision, high level strategy, and action themes that guide the regional strategy are developed on a European level. The action themes are separated into four quadrants which are shown in Figure 18. These continental high-level strategies and action themes are then used by regional directors to develop a high-level strategy for the region. The regional strategy is then separated into "Pillars" and "Key enablers", shown in Figure 19, which provide the framework for the creation of the statements of intent and strategic initiatives shown in Figure 20. Finally, each business line then creates "Key-take aways" according to the statements of intent, strategic initiatives, and the industries that they operate in. Although the process is described linearly, in practice, due to time constraints business line managers occasionally begin defining initiatives and key takeaways concurrently with the corporate strategy.

This strategic process can be separated into a corporate and business strategy according to the Mintzberg (2003) strategy definition, however, the organization does not clearly distinguish between corporate and business line strategies in their strategy communication. This is primarily due to the business-line strategies being developed simultaneously to the regional corporate strategy, and therefore minimizes the extent to which the regional strategy can guide the business-line strategy. This results in occasional inconsistencies in the strategy process and strategy communication where for example, focus areas are created that do not link to the pillars, or pillars and focus areas are not continued through to the key takeaways.

The strategic initiatives and key take-aways are allocated to a specific manager for implementation. The initiatives are linked to a clear measurable target, however, occasionally initiatives have no allocated target. This limitation minimizes the actionability of the initiatives. Additionally, the initiatives and key take-aways occasionally describe a broad context and are therefore more representative of an objective rather than an initiative. This further minimizes the actionability of these items.

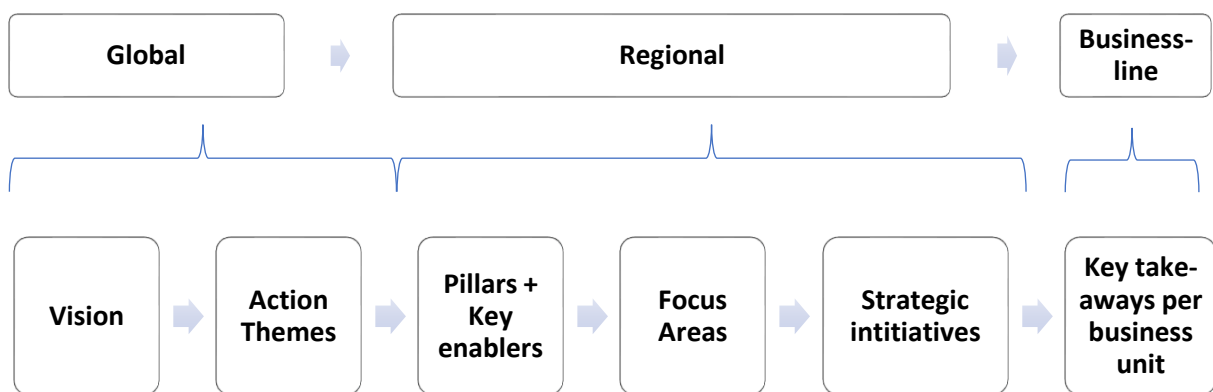


Figure 17: Company strategy process

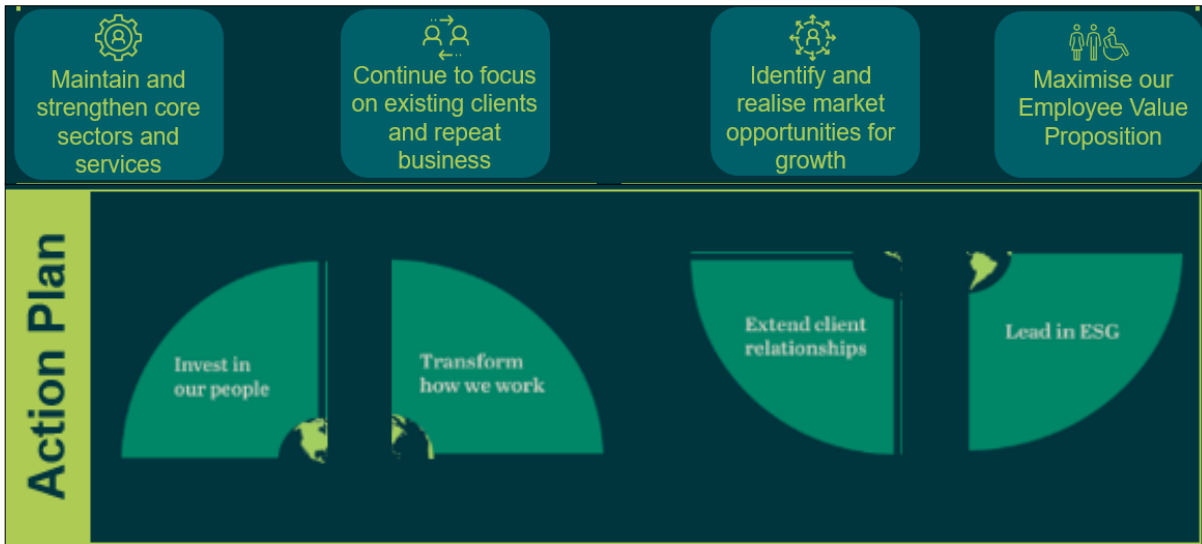


Figure 18: Strategy and Action Themes (AECOM, 2021)

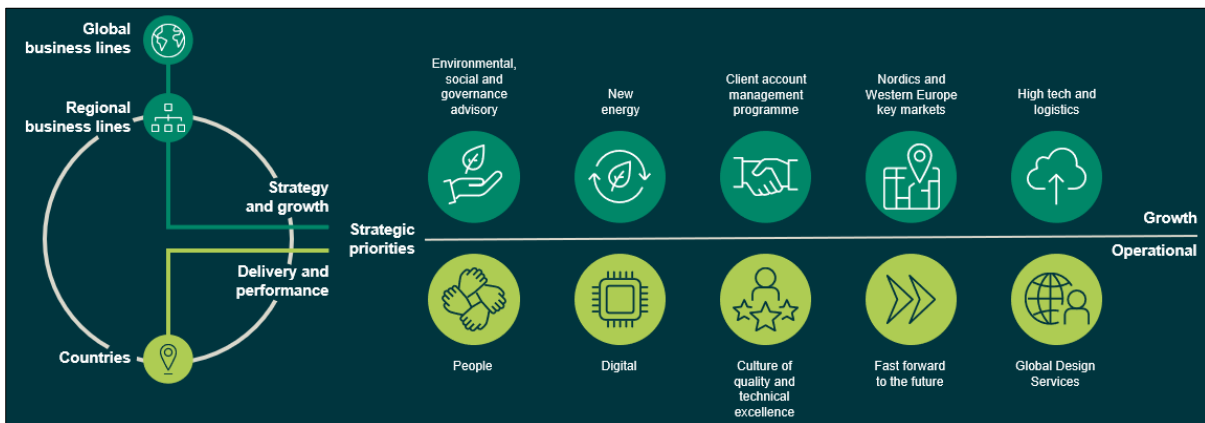


Figure 19: Strategic Pillars (AECOM, 2021)

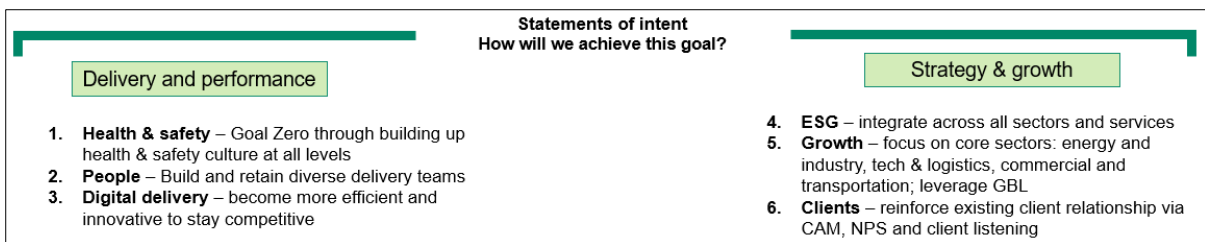


Figure 20: Strategic Focus areas (AECOM, 2021)

## 4.2 Case study strategy communication tools

The predominant ways in which AECOM communicates its strategy is through “Townhalls” and “Face to face” meetings such as performance reviews or meetings with senior management, which are elaborated on below. The company therefore does not make use of a specific central tool for strategy communication and storage.

**Townhalls:** Townhalls are large online meetings which are held on a European or regional level. At the beginning of the strategic cycle the strategy for the following year is discussed through a regional townhall. The strategy is communicated through a PowerPoint presentation

which is then stored on the organizations storage system if employees want to refer back to it. Business lines host their own townhalls, although progress on business line strategic initiatives is not frequently discussed.

**Individual Meetings:** The strategy is also communicated through face-to-face meetings such as individual performance reviews or team meetings. These meetings offer senior management the opportunity to discuss the business strategy with employees and enquire about an employee's progress on tasks related to the strategy or their understanding of it.

**Pulse Surveys:** The Pulse Survey is a yearly anonymous companywide survey that measures an employee's alignment to the corporate strategy using a 5-point Likert scale. Although this survey does not directly communicate the strategy, it does increase employees' awareness about it. The survey then provides overall results to the questions; however, the results are not separated according to organizational level or business units. These surveys have found no significant change in employees understanding and alignment to the business strategy over the previous five years.

### 4.3 Case study review conclusion

This chapter analysed the case study's strategic process, classified the type of organization, and analysed the tools currently used to communicate the organization's strategy.

The company can be classified as a diversified professional services firm that makes use of a deliberate strategy process. This is due to the organization providing a range of professional services across various industries, and the strategy process is carefully planned according to initiatives and objectives on a yearly basis. Although the organizations strategy process can be separated into corporate and business strategies, these differences are not clearly communicated in the strategy. This distinction is a recommendation by Mintzberg (2003) who states that within a diversified firm, a corporate strategy should be used to guide the strategies of the individual business unit strategies. Furthermore, the organizations strategy process can be described linearly, however, in practice the various phases and strategies are occasionally worked on concurrently which leads to inconsistencies in the strategy communication.

The organization has various methods of communicating their strategy, however, they do not utilize a specific tool and central storage location for the strategy. Furthermore, the organization has seen no significant change in employees understanding of the strategy over the previous years. The case study may therefore benefit from a strategy communication tool such as the strategy map, as it offers a central location for strategy information the map's purpose is to increase strategy communication and understanding. Although the organizations strategy is not developed according to the strategy map framework, there are various links between the strategy and the framework. The organization uses "Action themes" which closely relate to the perspectives of the strategy map and makes use of "pillars" and "strategic initiatives" which relate to the pillars and initiatives discussed by Perez-Franco (2010). Finally, the combination of various strategic development levels, business lines and hierarchical governance make it an interesting case study for this research, as these offer multiple "boundaries" to clear strategy communication.

The following step in the research is therefore to develop a strategy map for the organization, which can then be used to research how users from the different levels in the organization interact with the tool, and what influence the tool has on their understanding of strategy. The development of the strategy map is therefore discussed in the following chapter.

## 5. Strategy map development

To answer the sub research questions SQ 4 “How do users from the different organizational levels interact with the tool?” and SQ5 “What extent does interaction with the tool change an employee’s understanding?” a strategy map had to be created and researched. As mentioned by Stappers & Giaccardi (2017), when research is concentrated on how users interact with an artifact, it is considered as interaction design within the research through design field. The strategy map was therefore developed using principles from research through design methodology. The design methods that were used in the development were ideation, prototyping, user experience testing, implementation, and validation. An overview of the tool development methodology is shown in Figure 21, and guides the structure of this chapter.

Firstly, theory on the development of strategy maps was used to create a first draft design applicable to the case study’s strategy. In this first phase design goals and design requirements were created that guided the development of the prototype and final map in the later phases. The draft design was then customized in a workshop with senior management to ensure the map represents and communicates the case study’s strategy effectively. The workshop and draft design highlighted the benefits, and limitations, of using a new strategy framework to analyse a strategy that was developed according to a different framework.

The working prototype was then developed in Microsoft PowerBI, as this software allows for interactive dashboard properties which could be used as filters for the strategy map. A series of user experience interviews were then hosted in which qualitative data was gathered on how participants from different levels in the organization interacted with the tool. Feedback from these interviews was then incorporated and used to develop the final strategy map.

The tool was then validated through a post-strategy map questionnaire. This questionnaire required users to rank the effectiveness of the tool at communicating strategy and elaborate on the benefits and limitations of the tool. Furthermore, the questionnaire also measured user’s change in strategy understanding and need to understand strategy.

This chapter then concludes with key takeaways from the development of the strategy map and shares additional insights gained through the development process. Insights such as the effect of using a new framework to communicate an existing strategy, and concepts on what characteristics a good strategy communication tool should possess.

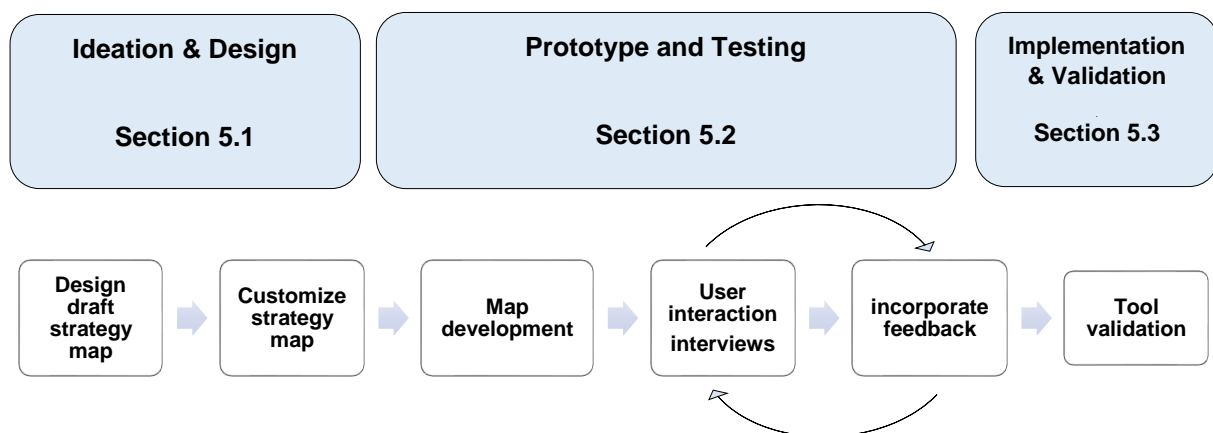


Figure 21: Strategy map development process

## 5.1 Ideation (Draft design)

The development of the strategy map combined the theory on strategy map frameworks by Kaplan & Norton (2004), as well the step-by-step guide to creating a strategy map by Perez-Franco (2010). Due to the case study not developing their strategies according to the framework of the strategy map, similarities first had to be drawn between their strategy and the theory, and links created. This first step of creating links between the strategy in practice and the theory resulted in the first draft design of the strategy map, which can be seen in Figure 22. This draft design was then customized in a workshop with senior management to ensure that it correctly communicates the key concepts of the strategy as intended by the management team. The result of this workshop was a refined draft design that more accurately communicates the organizations strategy, which was then used as the guide for developing the prototype as discussed in section 0.

### 5.1.1 Design goals and design requirements

The vision of this strategy map was to communicate the strategy in a simple visual format that would assist with increasing users strategic understanding. This is to meet the needs of senior management who are looking to improve communication of their strategy, but also to meet the needs of lower management who are looking to improve their understanding of strategy. Additionally, this meets the need of having strategy stored in a central location, in which employees can refer back to it. The design goal of the map was therefore

“Increase employees understanding of strategy through visually communicating, and storing, the strategy in a central location”. This design goal led to the formulation of the following design requirements:

- Communicate the current strategy according to the strategy map. Use company pillars and themes in the map to make it more relatable.
- Display the strategy on a single page, to avoid users needing to navigate through additional pages and documents
- Give the strategy map interactive properties. This will allow users to filter out information that is not relevant to them.
- Use various colours to assist with linking themes and pillars and to highlight where gaps in the strategy are present.

### 5.1.2 Incorporation of key strategy map components

According to the stepwise method by Perez-Franco (2010), represented in Figure 15, the strategy map development process consists of 1. Identify core strategy 2. Create strategic themes 3. Elaborate on functional themes 4. Develop operational themes and 5. Allocate supporting means and operational choices.

This stepwise method closely reflects Kaplan & Norton (2004) who 1. Create the strategy (Core strategy) 2. Divide it into the four perspectives (Strategic themes) 3. Develop pillars according to functional themes in the perspectives (Functional themes) 4. Create objectives and initiatives to the pillars in the functional themes (Operational theme) 5. Allocate managers and budget in the balanced scorecard (Operational choices). Using this as a framework, the organizations current strategy was represented in the map framework and the links are elaborated on below per step in the process.

#### 1. Core strategy

As shown in Figure 18, the case study strategy clearly communicates a vision and strategy on a corporate, European, level. The vision is communicated according to three key statements,

and the strategy is communicated according to four key statements, which can be allocated to the vision. These vision and strategy key statements were used as the core strategy in the draft design and can be seen in the top of Figure 22. Although the organization uses a high-level corporate strategy, it does not utilize individual business unit strategies. Therefore, the same corporate strategy was used for the business units core strategy.

## **2. Strategic themes**

Key strategic themes were determined on both a vertical and horizontal level. On a vertical level, the organization's core vision and strategy statements could easily be separated into the themes of "People", "Client" and "Growth". On a horizontal level, the naming of the four perspectives of the strategy map framework was customized to reflect the way the organization grouped their pillars. "Finance" became "impact", "client" changed to "key clients", "internal process" remained unchanged and "learning and growth" changed to "investment". Although the renaming of the perspectives assisted with the first draft design, following the workshop this nomenclature reverted back to the original perspectives of Kaplan & Norton (2004) for the prototype. Reverting back to the original nomenclature minimized large changes to the original framework and allowed for more consistency with the functional themes.

## **3. Functional themes**

Originally, the case study's strategy was communicated directly from "strategic themes" into "operational themes" and did not utilize the connecting step of functional themes. As such, for the first draft design no links could be created to functional themes and are therefore not displayed in Figure 22. However, following the workshop, the strategic themes were further sub-divided into the functional themes as per Kaplan & Norton (2004) and can be viewed in the prototype in Figure 24.

## **4. Operational themes**

The case study already communicated their strategy according to "Pillars" which closely relates to the definition and visualization of the Kaplan & Norton (2004) strategy map. Therefore, for the draft design it was only necessary to allocate these pillars into the most relevant functional and strategic themes. These operational themes, or "pillars", are represented as the icons in Figure 22.

## **5. Operational choices**

Operational choices are represented in a balanced scorecard format, in which the initiatives and managers are allocated to the operational themes (Pillars). The draft design was only used to develop a concept of the strategy map and analyse how the case study's strategy could be communicated in the map's framework. Therefore, the operational choices, which is more related to the balanced scorecard section of the strategy map, was excluded from the first design. However, given that the case study does allocate managers to initiatives, the operational choices were easily included into the final map. These operational choices are visible in the right section of Figure 27.

### **5.1.3 Customization Workshop**

Once the initial strategy map had been designed, a customization workshop was arranged with senior management responsible for the strategy development. During the workshop the company pillars were rearranged to suite the format of the map, and missing pillars were identified and included. This workshop ensured that the strategy map could correctly communicate the intended concepts of the strategy.



One of the pivotal insights gained from the workshop was the effectiveness of using a new strategy framework to highlight inconsistencies in the existing strategy. Using this new framework highlighted how key terms in the existing strategy were not consistently maintained throughout the communication. Consequently, this led to ambiguity in the strategy and resulted in confusion when interpreting the strategy. Furthermore, the framework also revealed gaps in the strategy and the absence of crucial operational components, "pillars". Some of the notable identified consistencies were:

- Key terms not being used consistently. The existing strategy was communicated according to pillars and key focus areas. However, on the business unit level these terms were no longer used, and strategy was communicated according to industries.
- Key pillars such as "Quality" and "HSE" were not present in the strategy.
- "Objectives" and "Initiatives" were being used interchangeably. As such, not all objectives had initiatives to drive the implementation and not all initiatives had objectives as a guide.
- Not all initiatives had managers assigned to them therefore diminishing the actionability.

Furthermore, the workshop produced recommendations and feedback that could be included into the prototype. Some essential outcomes and feedback from the workshop were:

- Reverting back to original nomenclature of the four perspectives
- Introducing the functional themes within the map according to Kaplan & Norton (2004)
- Removal of excess pillars and only using "key pillars" and "key enablers"
- Incorporate "industries" and "markets" into the prototype as an additional filter.
- Incorporate a "business line" filter to change between the high level and business line specific strategies.

|                                  |  | People  | Clients   | ESG  |
|----------------------------------|--|---|---|--|
| Vision:                          |  | Be the Industry employer of choice  | Be our Clients provider and partner of choice   | Achieve sustained profitable growth                      |
| Strategy                         |  | Maximise our Employee Value Proposition   | Maintain and strengthen core sectors and services<br>Continue to focus on existing clients and repeat business  | Identify and realise market opportunities for growth     |
| Pillars                          |  | Employee Value Proposition<br>Enterprise Capability Centre                        | Quality & Technical Excellence  | Think & Act Globally<br>Sustainable Legacies             |
| Impact                           |  | Grow Headcount<br>Provide opportunities for our staff                             | Mine our existing routes to market and maximise our direct awards<br>Grow key sectors and clients in a prioritised manner<br>Be our clients preferred suppliers | Increase gross margins<br>Grow NSR                       |
| Client Perspective / Key Clients |  | Industry employer of choice<br>Build on practice line strengths including digital | CAM Project   | Ensure success on major fwks and bids incl. GPA, EA etc. |
| Internal Processes               |  | Staff development, engagement and wellbeing                                       | Focus on Quality<br>Health and safety<br>Digital  | ESG  |
| Investment                       |  | Compensation<br>Professional Development  | PM education  |  |

Figure 22: Initial Strategy map format

## 5.2 Prototype and user experience interviews

The draft design refined in the workshop was then used to develop the prototype and conduct user interaction interviews. This section first elaborates on the development of the tool, and then expands on the process of the user interaction interviews.

### 5.2.1 Prototype development

Microsoft PowerBI was identified as a suitable software to develop the strategy map as it offers multiple methods of addressing the design requirements. The software is designed especially for developing visually appealing interactive dashboards. Therefore, PowerBI offered the possibility of meeting the design requirements of an interactive map, colour coded and visually appealing, and displaying the information simply in a one-pager format. Furthermore, this software has the capability of drawing data from various data sources such as Excel, Word, and PowerPoint, which the organization already utilizes to develop their strategy.

To execute the design requirements, the development of the interactive strategy map made use of dashboard development concepts as per Lamptey & Fayek (2012) from “Developing a Project Status Dashboard for Construction Project Progress Reporting”. Their paper mentions that dashboards are appropriate for communicating key messages quickly and allows users to only focus on issues that require their attention. This also matches with the research from Stenfors, Tanner, & Haapalinna (2004) who stipulate that users of boundary objects prefer to use tools that are transparent and easy to use. Furthermore, by allocating interactive properties to the strategy map, it allowed the users to filter the map according to the information that the user deemed relevant to themselves. This minimizes the possibility that the user feels overwhelmed by the amount of information to be processed and allows the user to break the strategy up into smaller segments that can be understood separately.

Lamptey & Fayek (2012) mention that a dashboard consists out of 3 components 1) Data Source 2) Data Warehouse 3) Dashboard. These three components were used to create the prototype and are elaborated below.

#### 1. Data Sources

The organization primarily utilizes Microsoft Excel and Microsoft PowerPoint for the development and communication of their strategy. This research used these files together with other company documents and informal interviews with senior management, to collect all the information related to the strategy. The information stored in these various sources were then converted into an Excel format so that all the information could be stored in a central location and a “Data warehouse” could be created.

#### 2. Data Warehouse

According to Lamptey & Fayek (2012), the purpose of the data warehouse is to collect all the data sources and store them in one central location. The data warehouse can then feed this information into the final interactive dashboard / strategy map.

Creating a data warehouse using Excel offers the opportunity to incorporate various look-up tables, drop-down lists, and conditional formatting. To ensure a consistency in language throughout the strategy development process, the data warehouse created for this research utilized a series of dropdowns lists from a set of tables. These dropdown lists offer the senior manager creating the strategy a list of options of pillars, business lines and managers to choose from. Furthermore, the lists allow for cross references between the data sources and allows for a series of filters which can then be used in the final strategy map.

The data warehouse first requires managers to create strategy on a corporate level and then assign it to a specific business line for implementation, see Figure 23. This data source then feeds a sample strategy map, which uses colour coding to illustrate for which pillars corporate objectives have been created and for which pillars objectives are still required, see Figure 24.

The corporate strategy data source then filters into the various business lines data sources which are represented in the same way as the corporate strategy in Figure 23. The business line data source then requires each business unit to create their specific strategy using a drop-down list of objectives from the corporate strategy. This process ensures that each business line creates initiatives according to the corporate strategy, by highlighting the addressed objectives in green, and the unaddressed objectives in red. Furthermore, the list of dropdowns ensures consistency in the pillars and objectives from corporate to business line level.

The system in the data warehouse ensures that a linear process of strategy development is followed and minimizes inconsistencies in strategy nomenclature and minimizes gaps in the strategy content. This leads to greater coherence in the strategy content and minimizes confusion related to using different nomenclature.

| Example. Organization Corporate strategy 2023 |                                 |   |   |  |
|---|---------------------------------|---|---|--|
| 1   |                                 |   |   |  |
| 2   | Vision and Strategy             | Theme: People                           | Theme: Client   | Theme: Growth  |
| 3   | Vision:                         | Be the Industry employer of choice      | Be our Clients provider and partner of choice             | Achieve sustained profitable growth                  |
| 4   | Strategy:                       | Maximise our Employee Value Proposition | Maintain and strengthen core sectors and services         | Identify and realise market opportunities for growth |
| 5   |                                 |   | Continue to focus on existing clients and repeat business |  |
| 6   |                                 |   |   |  |
| 7   | Functional Theme                | Icon                                    | Objective   | Business Line  |
| 8   | Product / service attributes    | HSE                                     | Example: Create a safe working culture                    | Environment  |
| 9   | Financial Impact                | FTE + NSR Growth                        | Example: Increase profit margins                          | Design   |
| 10  | Growth Strategy                 | Growth                                  | Example: New sectors growth                               | PMCM   |
| 11  | Relationship                    | Client                                  | Example: Increase quality of relationships                | All  |
| 12  | Regulatory and social processes | ESG                                     |   |  |
| 13  | Information Capital             | ESG                                     |   |  |
| 14  | Product / service attributes    | HSE                                     |   |  |
| 15  | Productivity Strategy           | Brand                                   |   |  |
| 16  | Organization Capital            | People                                  |   |  |
| 17  |                                 | Knowledge                               |   |  |
| 18  |                                 | Quality                                 |   |  |
| 19  |                                 | PM&DM Capacity                          |   |  |
| 20  |                                 | ESG embedded                            |   |  |

Figure 23: Data Warehouse: Corporate Strategy

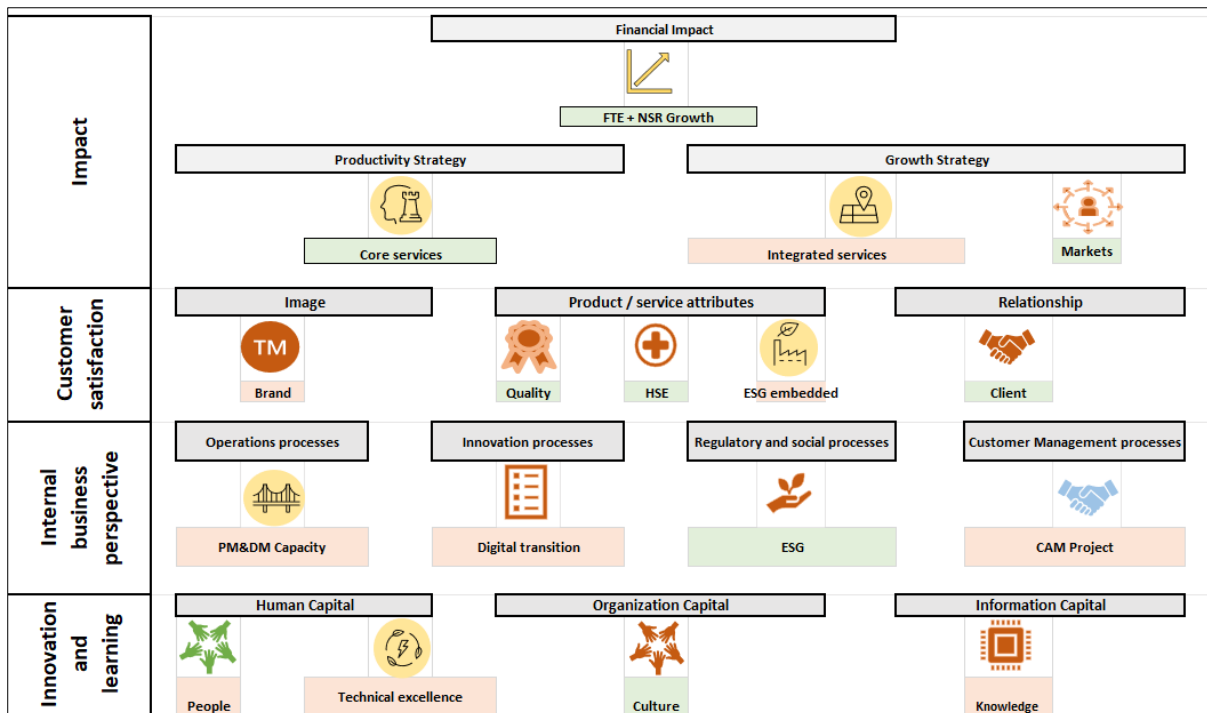


Figure 24: Data Warehouse: Strategy Map Guide

### 3. Strategy Map Dashboard

The data sources from the Excel data warehouse were then used to feed into the PowerBI model, in which the interactive strategy map was created. The strategy map was developed as a one-pager format within PowerBI and included various interactive elements and filters. The one pager format ensured that users have an overview of the entire strategy and related objectives and initiatives.

The map included information pop-ups for the user to gain additional information on the concepts of the strategy map and further information on the organization’s strategy, see the right of Figure 25 . These information pop-ups offer the opportunity to increase users understanding of the strategy process by elaborating on concepts that may be overlooked. Information such as how the organization’s corporate vision guides the strategy, and how the strategy guides the pillars and objectives was included. Additionally, explanations of the strategy map were included, such as the purpose of the perspectives and functional themes.

The report also includes a filter panel in which the user can select between corporate or business line strategy or search according to a specific manager’s name. Refer to the left of Figure 25. These search options allow users to easily switch between the high-level corporate strategy and business line strategy and can therefore easily see how the one strategy feeds into the other. The “manager search” option allows the user to search for initiatives and objectives that they are responsible for and therefore clearly shows how their individual role relates to the business line strategy and therefore the overall strategy. Each of the elements within the map such as the core themes, functional themes, pillars and industries, each act as additional filters. Triggering either of these elements filters out the objectives and initiatives in the balanced scorecard section of the strategy map, as demonstrated in Figure 26. The user can simplify the strategy into smaller understandable pieces, depending on which elements they are interested in viewing.

Displaying the strategy in a single one-page format and including various interactive filters and search options offers the user the opportunity to filter out the information that is applicable to them, while still having an overview of the entire strategy.

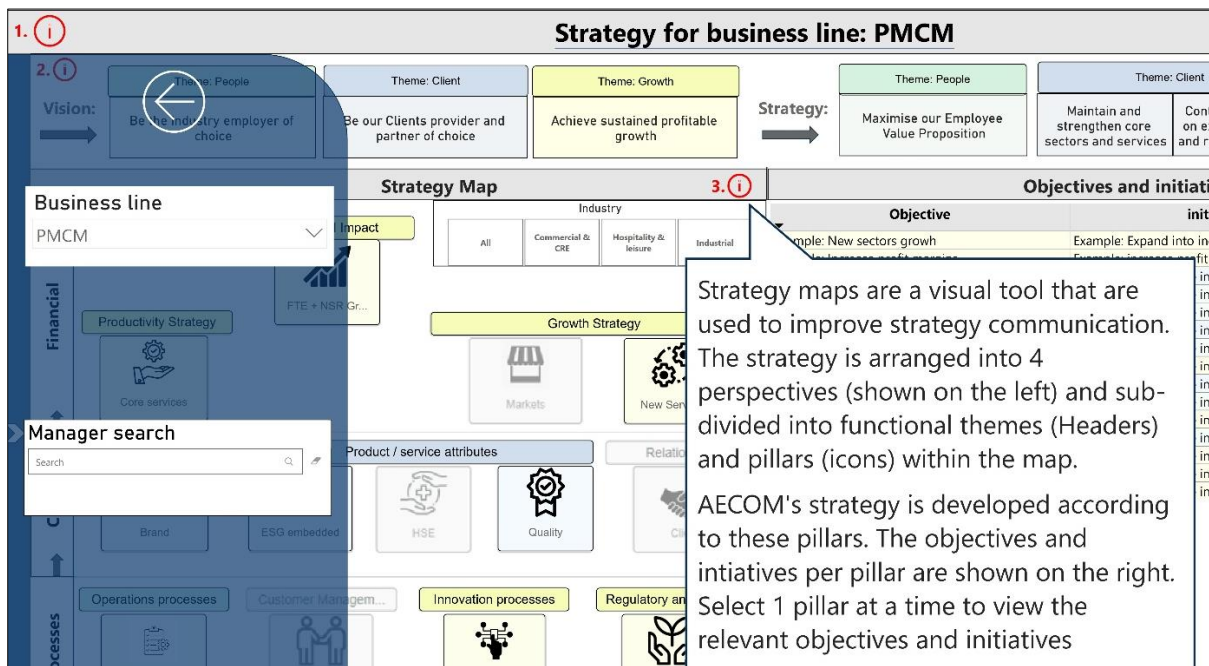


Figure 25: Interactive strategy map information pop-up

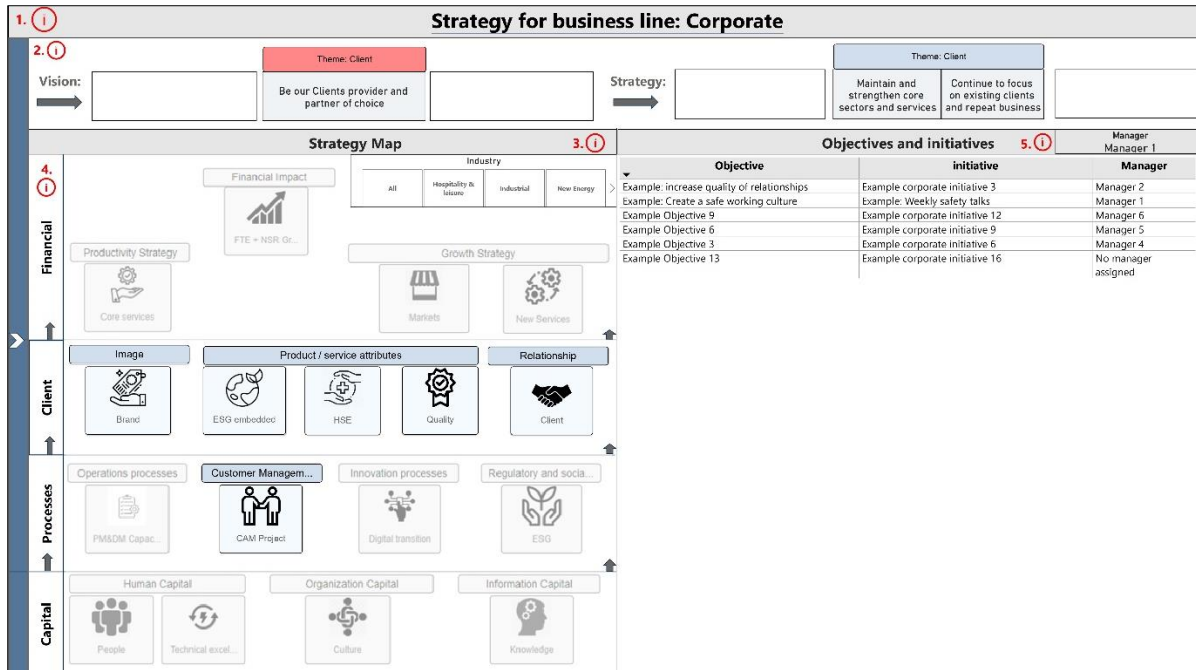


Figure 26: Interactive strategy map filtered

## 5.2.2 User experience interviews

SQ 4 “How do users from the different organizational levels interact with the tool?”, aimed to address the recommendation of Vuorinen (2018) and Spee (2009), who mentioned the importance of researching how different users interact with a tool in practice. By analysing the purpose that various users allocate to a tool, the tool can be adapted to assist with overcoming the various boundaries between different users. In this research, the primary boundaries addressed are the vertical boundaries between the three levels of the organizational hierarchy. Additionally, this research looked at the boundaries between different projects and disciplines within the business line. Therefore, participants for the user interaction interviews were selected across the organizational levels, as well as from different disciplines and projects. The sample group for the interviews consisted of three employees from the operational level, three employees from the middle level, and two from the senior strategic level.

These interaction interviews served two purposes. Firstly, the interaction interviews analysed how employees from the different levels interacted with the tool, and what they considered the purpose and usefulness of the tool. Secondly, the interviews collected feedback on how the tool could be improved and customized to suite all the organizational levels. The qualitative results from these interviews are presented in the following chapter, and their applicability to the research questions is discussed further in Chapter 7.

The user interaction interviews were structured as follows: Firstly, the tool was introduced and the ways in which it could be interacted with explained. Thereafter the user was observed while interacting with the tool for approximately thirty minutes. During this period the researcher inquired into which elements of the map the user was most interested in and which elements the user felt were not necessary. Finally, feedback for the tool, per organizational level, was noted in order to improve the prototype and develop it into its final stage.

### 5.3 Final Strategy map

The final strategy map is shown in Figure 25. This map was then implemented and used to measure the change in employees' understanding of strategy, and therefore address sub research question SQ 5. Following is an explanation of the final strategy map and how the design requirements were incorporated:

#### **Communicate the current strategy according to the strategy map**

To display the existing strategy into the map, links between the strategy and the map were created. The organization's vision and strategy were displayed as the core strategy. Thereafter, the pillars the organization uses to develop their strategy was displayed as icons within the strategy map. In this way, the map maintained the relation to the existing strategy and prevented the users from feeling that they were interpreting an entirely new strategy.

#### **Display the strategy on a single page,**

The final strategy map can be separated into the three sections. The first section "Vision and Strategy" sits on-top of the map and contains the overarching vision and strategy. Depending on whether the corporate or business line strategy is being viewed, the text in these boxes will update to reflect the vision of the relevant organizational unit. The second section is the strategy map which is visible on the left of the strategy map. This section visually displays the organization's strategy according to pillars (or icons), that are grouped according to functional themes and perspectives within the map. The third section is the balanced scorecard section of the strategy map and is shown to the right of the strategy map. This section contains information on the initiatives and managers that are allocated to the pillars in the map.

By displaying the strategy according to these three sections, the organizations entire strategy is displayed and stored on a single page. This is in contrast to the current method of communicating the strategy across multiple presentation slides and files. Furthermore, to ensure all information is displayed on a single page, a filter was incorporated which allows for switching the displayed strategy from corporate to business unit.

#### **Give the strategy map interactive properties.**

Leveraging the capabilities of Power BI this map included an array of interactive features designed to allow employees to access relevant information about the strategy and its underlying framework. These interactive elements allowed users to filter and tailor the map to their specific needs, thereby enhancing its relevance and utility. To facilitate user interaction, information icons accompanied by text box pop-ups were strategically positioned throughout the map, guiding users, and providing supplementary details. Each statement and icon functioned as filters enabling users to isolate the relevant initiatives. Moreover, a filter panel was integrated, allowing users to switch between the corporate strategy and individual business line strategies.

#### **Visually appealing and colour coded**

The inclusion of a color-coding system further facilitated understanding by establishing clear associations between pillars and thematic elements. To highlight gaps in the strategy, any icons lacking associated objectives or initiatives were deliberately greyed out, thereby drawing attention to areas in need of development and refinement. This comprehensive design approach aimed to transform the strategy map into a dynamic and user-centric tool, fostering enhanced strategic understanding and cohesion across the organization.

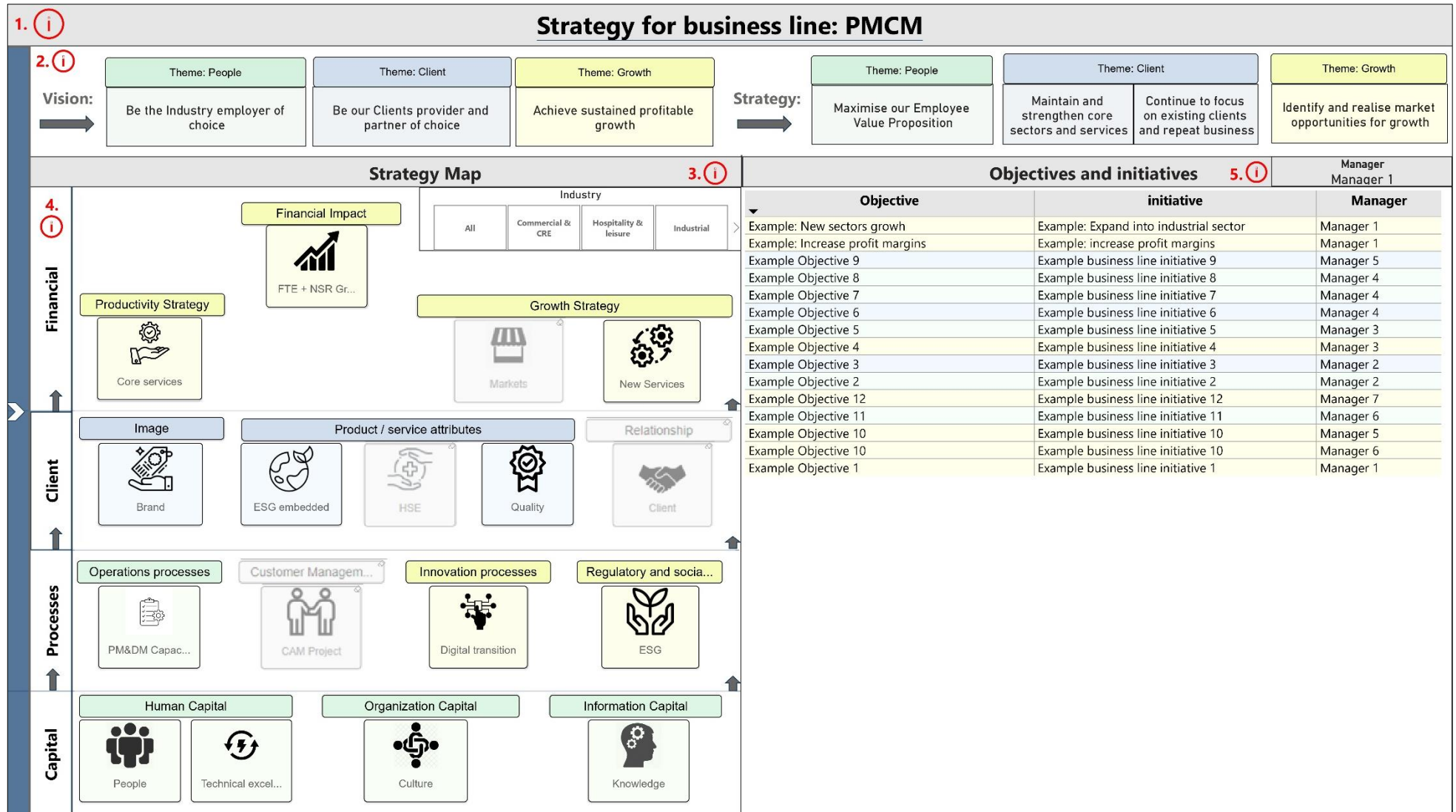


Figure 27: Final strategy map

## 5.4 Implementation and validation

Once the feedback from the user experience interviews had been incorporated into the final strategy map, the map was implemented and validated through a post-questionnaire. Implementation consisted of sending a link to the final strategy map to the same participants from the user's interaction interviews and requested them to interact with the final tool for 15-30 min before completing the post-strategy map questionnaire. The post-map questionnaire then validated the tool through: measuring the change in understanding of strategy from the pre-map questionnaire; incorporating questions in which users ranked the effectiveness of the tool for communicating the strategy; open questions that inquired about the benefits and limitations of the strategy map. The results from these questionnaires are presented in the following chapter and their relevance discussed in Chapter 7.

To validate the strategy map more effectively, it should be developed prior to the fiscal strategy year, used in regular progress meetings, and then its influence measured at the end of the cycle. In this way, senior management can develop the following year's strategy according to the framework of the tool to maximize the coherence of the strategy content. Furthermore, implementing the map over a longer period of time allows users more time to understand the tool's content and framework.

## 5.5 Strategy map development conclusion

Using the strategy map framework by Kaplan & Norton (2004), and the stepwise guide to creating a strategy map by Perez-Franco (2010), a strategy map can be developed for an organization that does not already utilize a strategy map. However, utilizing a new strategy framework to communicate a strategy developed according to a different framework comes with benefits and limitations. The benefit is that the new framework offers a different lens in which to analyse the existing strategy. This new perspective has the potential of highlighting inconsistencies in the strategy, which can then be addressed to improve coherence of the strategy content. The limitation, however, is that the existing strategy can likely not fully be represented and communicated in the new framework. This limitation can be minimized by developing a draft design of a strategy map and customizing it together with the management team responsible for developing the organization's strategy.

Furthermore, user interaction interviews are an effective method of gaining information on how employees from different organizational levels interact with the tool. These interviews clarify the purpose that different participants associate with the tool and provides crucial feedback on how the tool can be improved per organizational level. Incorporating feedback from each organizational level increases the possibility that the strategy will be effectively communicated throughout the organization and will lead to a more cohesive strategy. Validating the map through a post questionnaire in which interviewees can rank the effectiveness of the tool and provide further information on its benefits and limitations allows further insights into the use and improvements of the tool.

Finally, through the tool's development, user interaction, and post questionnaire the following characteristics were identified to be beneficial for a strategy communication tool: Allocating interactive properties to a communication tool invites inquiry into the contents and allows the user to filter out information that is relevant to them. Displaying key items as icons rather than text, and incorporating colour coding to assist with linking information, improves the visual representation of the content.

The following chapter presents the results from the pre- and post-map questionnaires, as well as the results from the user experience interviews. These results are then used to answer sub questions SQ4 and SQ5 in the chapter thereafter, Chapter 7.



## 6. Results

To answer sub question SQ4 “How do users from the different organizational levels interact with the tool?” and SQ5 “What extent does interaction with the tool change an employee’s understanding?” a mixture of both qualitative and quantitative data is required. However, due to the size of the sample group, the analysis of the data utilized a qualitative approach to measure how the interactive strategy map influences employees’ understanding of business strategy. This chapter presents both the qualitative and quantitative data that was acquired. The discussion and analysis of the data is then addressed in the following chapter.

The research was conducted through questionnaires before and after the implementation of the map, as well as user interaction interviews during the development of the map. The sample group consisted of 8 employees across the organizational hierarchy, three on the operational level, three on the middle level and two on the strategic level. The selection criteria for the sample group were that each participant should either differ in their discipline, project, or programme. This ensured a broad range of perspectives when interacting with the strategy map and therefore allows the results to be used to be inferred onto other similar organizations. To preserve confidentiality all interviews and questionnaires only documented the participants role within the organization (Senior, middle or operational).

First the quantitative data from the pre and post questionnaires is presented, followed by the qualitative results from the open questions from the questionnaires. Finally, the overall key takeaways, and individual take-aways, from the user experience interviews are presented. All results are separated according to organizational level to assist with the comparison between the levels. The data is presented in this order as the qualitative data was used to substantiate the quantitative data.

### 6.1 Questionnaires data

The pre and post questionnaires consisted of five-point Likert-scale questions as well as open ended questions. The Likert scale questions aimed to quantitatively measure employees’ level of strategic understanding, as well as the level to which they felt they needed to understand the strategy. The open questions in the questionnaire were used to gain additional information on thus substantiate the quantitative data. The post-questionnaire included additional questions which were used to validate the strategy map through: requiring interviewees to score the effectiveness of the strategy map in communicating business strategy; record how frequently they would use the map; and elaborate on the benefits and limitations of the map. The quantitative data from the questionnaires is shown in section 6.1.1 and the qualitative data from the open questions are shown in section 6.1.2. For reference, the questionnaires are included as Appendix B and C.

#### 6.1.1 Questionnaire quantitative data

The questions from the questionnaire were grouped to measure employees strategic understanding and their perception on their need to understand the strategy. The questions from the questionnaire were divided as follows: Employees level of strategy understanding was measured through questions 5, 6, 7, 8; Employees perception of their need to understand strategy was measured through questions 9, 11, and 13. Refer to Appendix B and C for the questions. The results from these questions, and their change from the pre to post questionnaire, according to organizational level are shown in Figure 28. The data from the post questionnaire in which interviewees ranked how effective the strategy map was at communicating business strategy is shown in Figure 29. The frequency of use of the tool is displayed in Figure 30, and the extent to which interviewees felt more connected to the organization’s strategy after being included in the development process is shown in Figure 31.

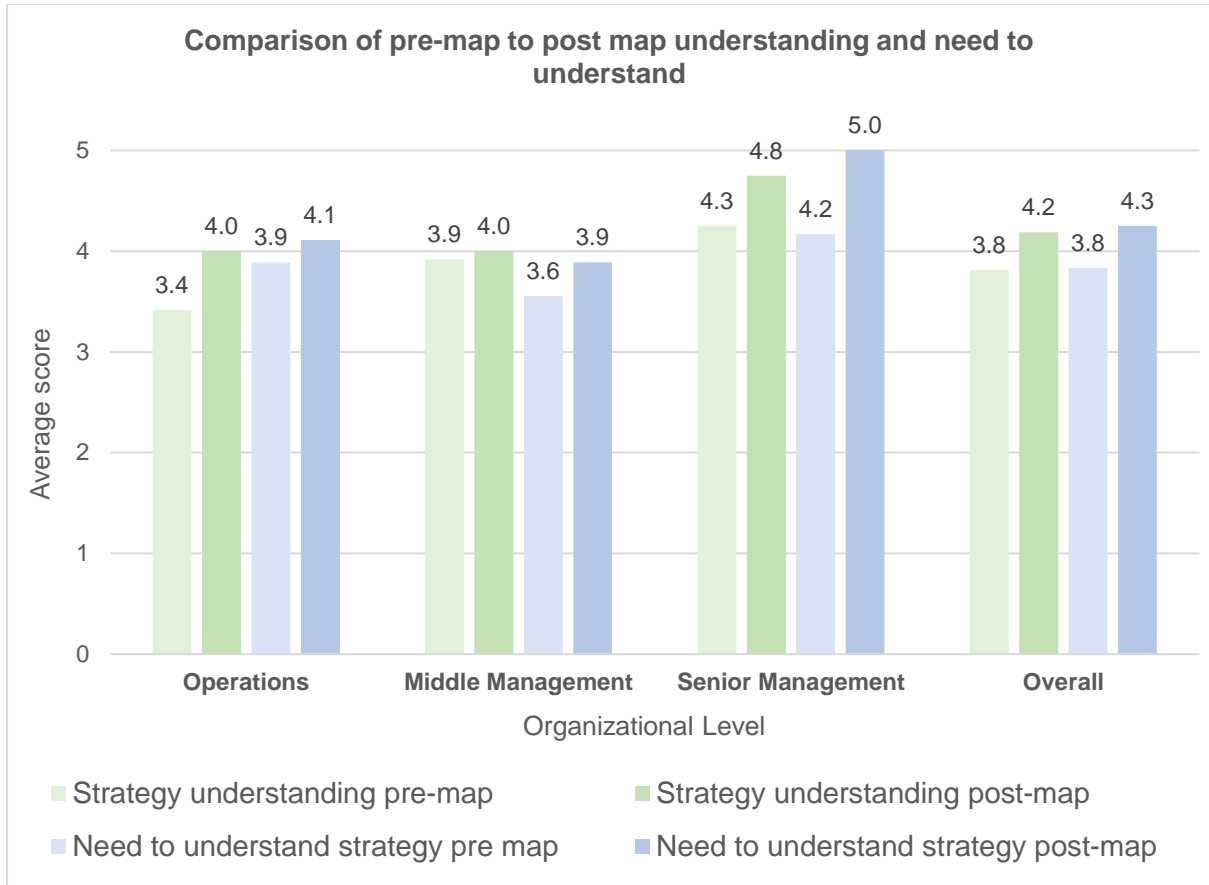


Figure 28: Quantitative data; pre vs post map results

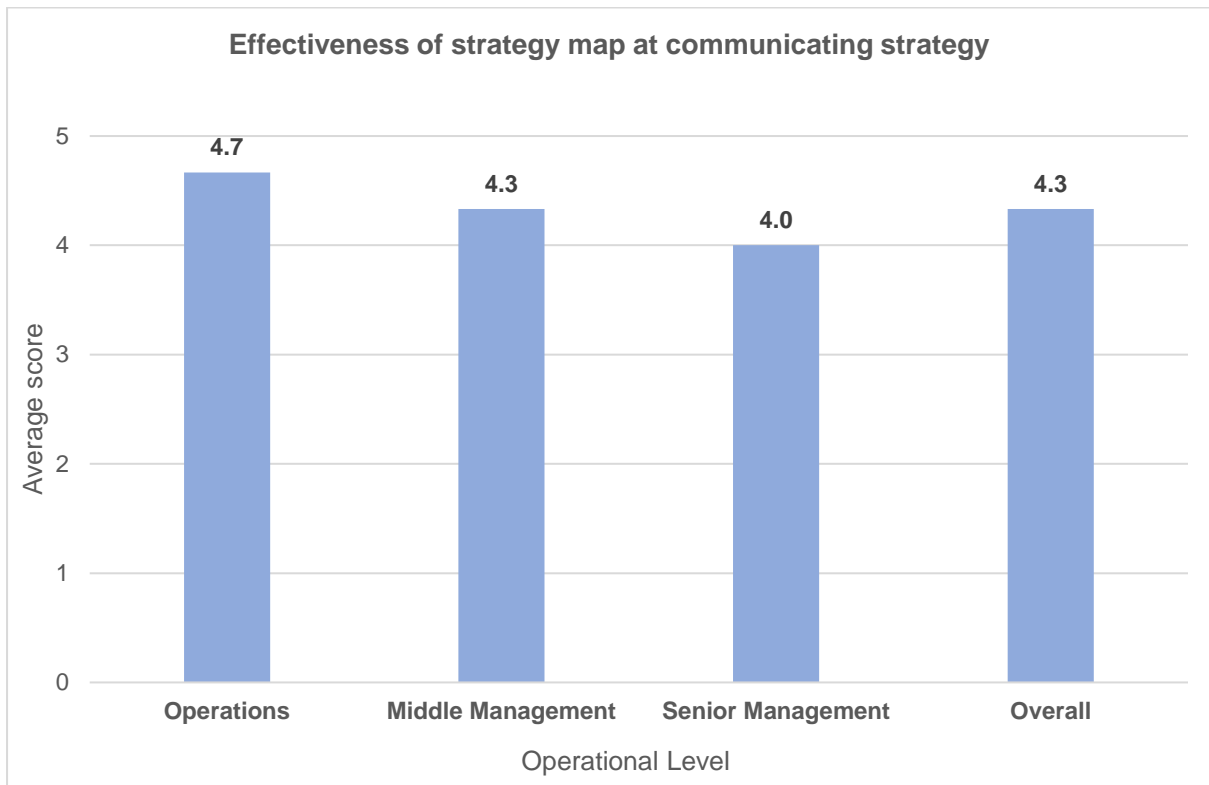


Figure 29: Quantitative data; effectiveness of strategy map

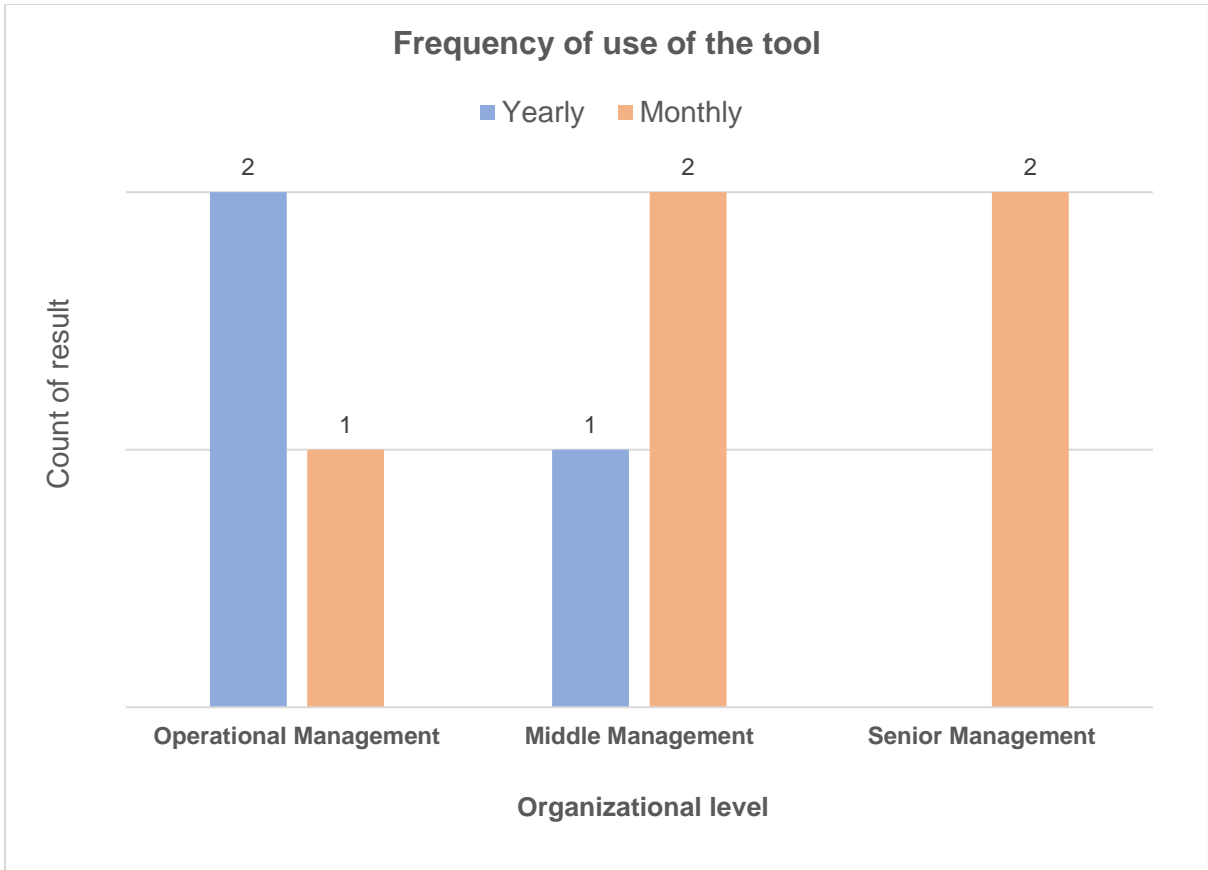


Figure 30: Quantitative data; frequency of use of the strategy map

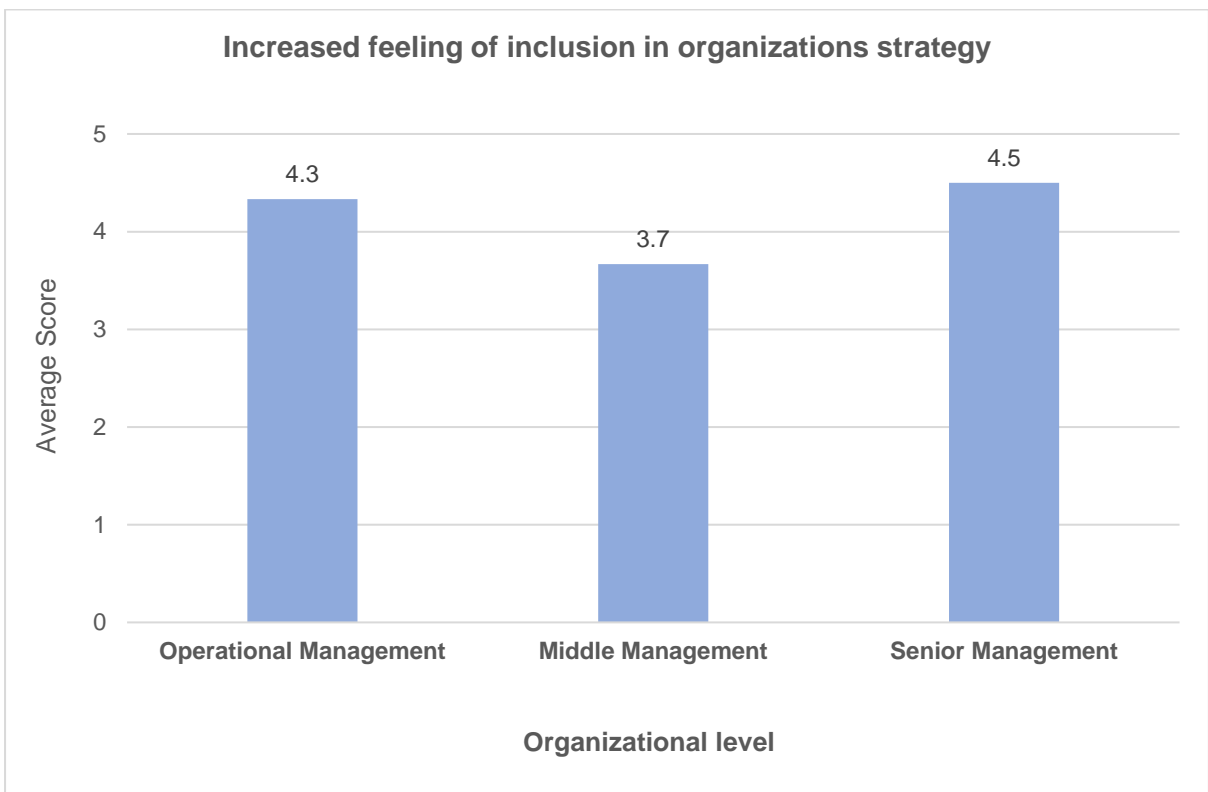


Figure 31: Quantitative data; feeling of being inclusion in strategy.

### 6.1.2 Questionnaire qualitative data

The qualitative data from the open questions in the pre and post questionnaires are tabulated in Table 1 and Table 2 below. Table 1 presents the qualitative data related to interviewees strategic understanding and Table 2 represents the results related to the tool's effectiveness.

Table 1: Questionnaire qualitative results; strategy understanding

| Open Questions  | Operational management  | Middle management   | Strategic management level   |
|---|---|---|--|
| How is the strategy currently communicated?   | Townhall meetings and face to face with senior management team  | Townhalls and management meeting  | Global strategy is communicated through corporate townhalls and presentations  |
| Do you feel it is necessary for you to understand the business strategy when executing your daily tasks?        | Disagree, my focus is mainly focused on Project delivery; ultimately this will affect company reputation and its future business.   | Agree, when discussing the further plans with the specific program, it needs to fit the business strategy   | Strongly Agree, I'm part of the decision makers on how the strategy must look like                                       |
|   | Strongly Agree, I feel that it is important for each employee to understand their role in the overall strategy. I think this helps foster a more positive work environment as each team member knows how they fit in to the puzzle.               | Disagree, Individual tasks and client assignments / contracts can be executed by themselves. However, we should understand the wider picture as the only asset is the AECOM employee and the product is the result. | Agree  |
|   | Agree, my daily tasks reflect on the reputation of AECOM, which is key for business strategy and placing our business in the market. Furthermore, work winning and targeting new opportunities may be related to the daily tasks that I complete. | Agree, I work in a program team for one client, this causes a small disconnect to the overall AECOM strategy. 'The AECOM way' can then get blurred by the day-to-day-program business (and client's strategy)       |  |
| Would a better understanding of the business strategy change the way you in which you execute your daily tasks? | Agree, I may have a different belief in what is important to the company over what I may believe is important.  | Agree, the more I know, the better I can make it fit with the program I manage  | Agree, in this position it is sometimes complicated to convey the key global strategy message.                           |
|   | Agree, the better an employee understands the strategy, the easier it would be for them to tailor their daily activities to support the overall strategy.   | Agree, in every job part of it can be linked directly to overall business strategy. This should therefore get some extra attention.   | Agree, TBD   |
|   | Agree, understanding the overall strategy allows an individual to focus their daily tasks accordingly.  | Undecided, Understanding and applicability in a program depends on the content of the strategy.   |  |
| Do you think it would benefit the organization if you had a better understanding of business strategy?          | Agree, the decisions we make would align and we can consciously shift our thought process towards following that strategy.  | Undecided, meeting the specific project program strategy is equally important   | Agree, it would help me to inform my team better and give more direction on where we are going within the bigger picture |
|   | Agree, same as previous question answer   | Agree, same as previous question answer   | Agree, TBD   |
|   | Agree, focusing on aligning my outputs with the strategy, it is more likely that the business will achieve the targets set out in the strategy.   | Agree, it is hard to object to a good understanding of the business strategy  |  |

Table 2: Questionnaire qualitative questions; effectiveness of the strategy map

| Open Questions  | Operational management  | Middle management   | Strategic management level  |
|---|---|---|---|
| What are the benefits of the strategy map?                          | Clearly defines the strategy for the business and allows to search / filter by specific business lines and criteria.  | Because AECOM is a large corporate, understanding what is applicable to an individual using filters makes the strategy more tangible. Filtering on "Manager" makes it personal and direct                       | The strategy map gives a concise vision of many different initiatives and documents produced on strategy. It also gives a medium to interact and discuss strategy. It would be good to use it as an opportunity in collective strategy exercise.  |
|   | It is easier to see the higher-level strategy, but is also beneficial to go into more detail and see how certain individuals or roles can support the strategy            | The map creates a clear overview and link to day-to-day operations  | It's interactive, and people can easily find the topics they are interested in. It helps understand how a strategy is built up in a company and how it translates to the day-to-day activities. it's linked to action holders, enabling people to reach out and contribute. Easily accessible if integrated into company internal system  |
|   | It is a simple and digestible tool to understand the companies long term strategy and how they intend to achieve it.  | easier accessibility to the strategy of AECOM   |   |
| What are the limitations of the strategy map?                       | The effectiveness is linked to the quality and relevance of information inputted into the map. Unless it is updated and detailed then it will quickly lose effectiveness. | The array of filters. Keeping industry, or projects and teams, as a filter allows a more direct approach  | It feels like the connections between the items are loose or not explicit. Logical connections are expected, starting from the root (the capital) up to the top (the financial impact). Yet, it is not obvious as it is to understand those connections based on the items we selected for AECOM, but that might just be a feature to improve for our strategy map.   |
|   | I could foresee an issue with sensitive information that may be needed by more senior management that would need to be hidden from others.                                | Integrating the tool into day-to-day usage  | As every tool it needs to be updated on a regular basis to make sure it retains its value. The tool has the possibility to show progress, but then it needs measurable initiatives which is not always easy to define. It is not in this version of the tool which I believe is a good decision. The strategy needs to be translated to the map, requiring the author to have a good understanding on how vision, strategy and themes are linked. |
|   | Having the tracker and guide on one page could be too much information  | initiatives should be SMART.  |   |
| Frequency of use  | Yearly, Unless the information is changed regularly, I wouldn't see a benefit of reviewing the information in the strategy map monthly.                                   | Monthly, would be sufficient to confirm that we are on track. If i were snr management and the tool used real targets, goals, vision, etc., they can then use it in weekly / monthly catch up with their teams. | Monthly, the frequency will depend on how actively the tool is updated. I would start using the tool in Monthly or Quarterly meetings to familiarize the team more with this format and enable a better understanding of the business line strategy.  |
|   | Monthly, I feel that within my role, a monthly check in to see how I can support the strategy is sufficient.  | Monthly, will try using it with my team   | Monthly, I see two possible uses for the strategy map: the first at stage of the definition of the strategy, as a collective tool on which the team could interact, and second as a follow up tool for actions we would be set to deliver on.   |
|   | Yearly, I assume it would not be updated frequently enough to warrant monthly revisiting.   | Yearly, current strategy is not part of day-to-day activities.  |   |
| Do you have any other feedback, notes, or recommendations to share? | Adding a clear filter button would be beneficial.   | The more you can directly reach the individual the more engaged the individual will be. If the info (objective and initiatives) is correct and KPIs inputted, then the tool would be more useful                | Would be good to have a small manual on how to update the strategy map for future use.  |

## 6.2 User interaction interviews data

Additional qualitative data was gained through semi-structured interviews in which the interviewees were required to interact with the tool for approximately 30 minutes. Throughout this process the researcher investigated how the interviewees from the different organizational levels interacted with the tool, what they emphasized as important, and what their feedback was. The user interaction interviews were conducted to address the concept of how strategy tools can be used as boundary objects to overcome organizational boundaries, as per Spee (2009).

These interviews therefore had the following purpose:

- Gain information on how the tool is used in practice by employees from different organizational levels and how these interviewees interacted with the map
- Gather feedback on the benefits, limitations, formatting, and layout of the strategy map
- Create inclusion in the development process to increase the feeling of involvement.

The key-takeaways from these interviews per strategic level are shown in Table 3. Notes per interviewee are displayed thereafter in Table 4.

Table 3: Interview qualitative results; User interaction interviews

| Organizational level          | Key-takeaways   |
|-------------------------------|---|
| <b>Operational management</b> | <ul style="list-style-type: none"> <li>- Primarily interested in the broad corporate strategy and how this is reflected to the business line and pillars.</li> <li>- As such, operational managers were predominantly interested in the visual flow and process of how the strategy is created, and how this applied to their specific business-line</li> <li>- Operations were more interested in the business line strategy rather than the corporate strategy</li> <li>- Operational managers were not concerned about KPI's and tracking of initiatives. They felt that this should be a separate report only for senior management and middle management.</li> <li>- Required an explanation on the process of how the objectives were first created on a corporate level.</li> <li>- Required further explanation on each of the perspectives and how they relate to the overall strategy</li> <li>- Would not revisit the strategy map on a regular basis. Would rather prefer to have the key items communicated through townhalls and then occasionally revisit the strategy map for self-reflection.</li> </ul> |
| <b>Middle Management</b>      | <ul style="list-style-type: none"> <li>- Middle management were primarily interested in individual tasks and how their specific program, team, or industry is linked to the overall strategy.</li> <li>- As such, middle managers were predominantly interested in filtering the map further into industries or specific managers.</li> <li>- As a result, middle managers often became focused on one objective or initiative in particular, rather than on the overall communication of the strategy and the format of the strategy map.</li> </ul>   |

|                                 |   |
|---------------------------------|---|
|                                 | <ul style="list-style-type: none"> <li>- Middle managers were more interested in the “Manager search” filter than the other organizational levels. This filter makes the strategy map very specific to the user.</li> <li>- Requested more filters to further filter the content in the map. I.e., filter according to main theme, functional theme, industry, and manager</li> <li>- Very interested in seeing a practical example of how an objective relates to each perspective in the strategy map.</li> <li>- Middle managers were more interested than operational managers in the KPI’s linked to the initiatives. They would however also include time limitations on the initiatives to assist with tracking.</li> <li>- Middle managers were more interested in their business line strategy rather than the corporate strategy.</li> <li>- Required further explanation on each of the perspectives and how they relate to the overall strategy.</li> <li>- Overall, middle management was satisfied with the tool and would use it on a more regular basis to update individual tasks</li> </ul>   |
| <p><b>Senior Management</b></p> | <ul style="list-style-type: none"> <li>- Senior management was primarily interested in how the map visually communicates the overall strategy, and how the filters assist with making the strategy more tangible and “real”.</li> <li>- As such, the senior managers were interested in how pillars changed between the corporate level and the business line level. They therefore often used the filter that switched the report from corporate to business level.</li> <li>- To the senior management, one of the most important aspects is that employees feel more part of the strategy and more included in the process. The map achieves through being more interactive and including employees in the development process.</li> <li>- Like the conceptual framework of the strategy map and how it visually demonstrates the flow and step-by-step process of the strategy development.</li> <li>- Senior management liked that the tool is an object that centrally stores strategy information.</li> <li>- Like that employees can interact with the tool, which makes the strategy more “real” and invites employees to explore it further.</li> <li>- Senior managers were interested in whether employees from the other organizational levels felt more attached to the organization’s strategy after being included in the process.</li> </ul> |

Table 4: User interaction interview notes

| Organizational level          | Interviewee          | Notes   |
|-------------------------------|----------------------|---|
| <b>Operational management</b> | Operations manager 1 | <ul style="list-style-type: none"> <li>- Split up the description of the perspectives into each theme.</li> <li>- Explain that AECOM creates objectives according to pillars. These pillars are in the strategy map.</li> <li>- Include a clear all filter button</li> <li>- See if filters can be triggered together. AND function rather than OR function</li> <li>- Explain that objectives are created on corporate level first</li> <li>- Easier to just give a link that people can easily get into.</li> <li>- Be clearer on the distinction between business and corporate strategy</li> <li>- Better formatting needed. Consistent spaces.</li> <li>- Switch off interaction buttons on text boxes.</li> </ul>   |
|                               | Operations manager 2 | <ul style="list-style-type: none"> <li>- Vision text and strategy text should be bigger</li> <li>- Want to click on vision / people box to get more information. If you click on the on the theme or vision button, everything else should disappear.</li> <li>- Number the information buttons.</li> <li>- Three colours of the themes are not clear.</li> <li>- Include a tool guide</li> <li>- Strategy map information pop up box should not block the pillars.</li> <li>- More clear description needed that the pillars are the icons that are within the perspectives.</li> <li>- Include flow arrows into the strategy map.</li> <li>- Feels KPI's measurement section is not actually necessary. Performance measurements should be more back of house.</li> <li>- Initiatives require further elaboration or link to another page.</li> <li>- Text of objectives and initiatives should be darker.</li> </ul> |
|                               | Operations manager 3 | <ul style="list-style-type: none"> <li>- The map helps to explain the role better and who the manager is</li> <li>- Good to have vision and strategy reminders</li> <li>- Where the employee fits into the puzzle is the most interesting.</li> <li>- KPIs should not be seen by operational level</li> </ul>   |



|                          |                  |  |
|--------------------------|------------------|--|
| <b>Middle Management</b> | Middle manager 1 | <ul style="list-style-type: none"> <li>- Learning title needs to change.</li> <li>- Information pop-up per perspective for further information</li> <li>- Bottom perspective is what do we need to know. Internal perspective is how we deal with that internally. Client is “the services” that we offer our clients.</li> <li>- Likes the manager search option.</li> <li>- Vision is the what and strategy is the how.</li> <li>- More high-level filters should be included. Example select functional theme</li> <li>- Include reverse highlights. I.e., select and objective that filters out the pillar and theme.</li> <li>- If I am an employee what does my team or division for the strategy? .</li> <li>- Good to filter using team specific searches</li> <li>- Multiple name selection. Example Manager + All + Team.</li> <li>- “Learning” should be people or capital</li> <li>- “Internal” should be company</li> <li>- “Client” should be “services”.</li> <li>- Arrow on the filter panel should rather be a filter symbol</li> </ul> |
|                          | Middle manager 2 | <ul style="list-style-type: none"> <li>- Applying the strategy to a programme depends on the content</li> <li>- 1st identify the markets you want to aim for then build from there</li> <li>- Wants to see a practical example</li> <li>- Link strategies to timelines</li> <li>- Link it to individual tasks in company’s ecosystem/ workday/ for individual performance management.</li> <li>- Link project and programme to overall</li> </ul>  |
|                          | Middle manager 3 | <ul style="list-style-type: none"> <li>- Like to see the link between corporate and business line strategy</li> <li>- Visualization is good.</li> <li>- Would like to see the missing pillars in the PMCM but faded out.</li> <li>- Adding colours to the pillars to make it more visual.</li> <li>- Too many initiatives can lead to poor communication. Less initiatives and less strategy.</li> <li>- Too much to digest to make it applicable to day to day. The name and industry filters help though</li> <li>- Overall great tool. Happy to use when it is finished.</li> </ul>   |

|                          |                  |  |
|--------------------------|------------------|--|
| <b>Senior Management</b> | Senior manager 1 | <ul style="list-style-type: none"> <li>- Growth and markets pillars are saying the same thing</li> <li>- Include a “new services” icon.</li> <li>- Growth should be separated in new markets (Expand into new markets) and new services (Offer new services)</li> <li>- The options we have under productivity strategy are not clear at the moment</li> <li>- Reducing administrative burden should fall under productivity strategy</li> <li>- Likes the conceptual framework of the strategy map. Is willing to use it to explain the strategy.</li> <li>- Likes that it explains the strategy step by step.</li> <li>- Likes that a tool is an object/framework that people can interact with. The tool makes it more real that allows people to explore the strategy themselves.</li> <li>- Add a question to the questionnaire. “Do they feel more involved in the strategy after being involved in the process?”</li> </ul> |
|                          | Senior manager 2 | <ul style="list-style-type: none"> <li>- Good to think about the operational aspect and good that this is shown</li> <li>- Nice to be able to select between corporate and business line easily and one pillar to see how that pillar changes between the levels.</li> <li>- Would be good to select multiple pillars to see how they all relate to each other.</li> <li>- An important part is that people feel more included in the strategy.</li> <li>- Both senior management mention that we ask in the second questionnaire if people feel more included and attached to the strategy after being included in the development process</li> <li>- Maybe the word “manager” should change to “contact person”</li> <li>- Include the “what” the “how” and the “who” as descriptions for vision, strategy, and manager.</li> </ul>  |

## 7. Discussion

### 7.1 Interpretation of the research findings

This chapter uses the results presented in the preceding chapter to address sub research questions SQ4 and SQ5: “How do users from the different organizational levels interact with the tool?” and “What extent does interaction with the tool change an employee’s understanding?”. By understanding how each organizational level uses the tool, and the purpose they associate to it, the tool can then be used to overcome the vertical boundaries associated with strategy communication, and therefore increase the level of understanding. The results are therefore discussed according to the various hierarchical levels in the organization, starting with operational management, followed by middle management, and finally senior management. The results per organizational level are discussed in the following order: First the level’s understanding and perception on their need to understand the strategy before the strategy map is discussed; Following this, the key results from the user interaction interviews are discussed; Thereafter, the quantitative change in the level’s understanding and need to understand is elaborated on; Finally, the level’s feedback on the effectiveness, benefits and limitations of the tool are discussed.

Following the discussion per hierarchical level, the influence of the tool’s development process is discussed. A comparison on the changes of “need to understand strategy” and “strategy understanding” is then provided. Thereafter, the benefits of viewing the tool as a boundary object is discussed. The chapter then ends with an elaboration on the validity of the research, the limitations of the research, and finally, the added value of the research in terms of scientific and practical relevance is presented. Where relevant, the results from this study are compared to results and hypotheses from the literature review.

#### 7.1.1 Results according to hierarchical level

##### **Operational management**

The operational level had the lowest understanding of business strategy before the implementation of the strategy map. This can be attributed to this level not being directly involved in the strategy development process, and only having the strategy communicated to them in optional strategy presentation meetings. However, operational managers did feel a high need to understand the business strategy. This was reaffirmed in the open questions which showed that employees on the operational level felt that if their tasks were aligned to the business strategy it would benefit the organization and allow them to tailor their daily tasks to meet these needs.

The user interaction interviews revealed that the operational team had a favourable response to seeing how the company’s vision translates into the strategy and is visually shown in the strategy map. This level was curious about how their role can be linked to initiatives and how that is then linked to the overall strategy. As such operational managers were slightly more interested in the corporate strategy, than in the business line’s strategy. The operational level’s focus on the broad vision and strategy can be attributed to the point that the strategy is usually not communicated according to a corporate vs business line perspective, and they therefore search for this explanation in the tool.

The results from the post questionnaire showed an increase in both the level of strategic understanding as well as the need to understand the strategy. Although, there was a higher increasing in their understanding of the strategy than the need to understand the strategy. The operational level reported the highest increase in strategy understanding compared to the other organizational levels. The increase in strategy understanding can be attributed to the

way in which the strategy map communicates the content of the strategy. Compared to senior management who also showed a large increase in strategic understanding, the operational level was less active in the map development process. Their increase in understanding can therefore be attributed primarily to the strategy map itself, rather than the development process. The increase in strategic understanding of operational management confirms the theoretical model by Decoene (2006), who state that a strategy communication tool should increase an understanding of strategic requirements from lower management. Furthermore, Armstrong (2019), stated that strategy maps would be effective at communicating strategy to groups with low subject-matter knowledge.

The operational level ranked the effectiveness of the strategy map higher than any of the other organizational levels. They strongly agreed that the strategy map is an effective tool for communicating business strategy and increasing understanding. Furthermore, the open questions in the post questionnaire showed that the benefits of the strategy map to the operational level are in its ability to make high level strategies digestible and understandable in a visual way. Their limitations of the map were predominantly linked to the quality of the content and amount of information shown on one page. The operational level stated that they would predominantly use the tool on a yearly basis, depending on how frequently the tool is updated. This can be attributed to the point that no specific strategic objectives and initiatives are allocated to the operational level, and rather that it is the broad objectives that are applicable to them. Operational management's perception that the strategy is not relevant to them is line with Floyd (2000) who mention that strategic role conflict is more likely within operational management than in higher management levels. Finally, the inclusion of this level in the user interaction interviews had a high influence on increasing their feeling of alignment towards the business strategy.

### **Middle Management**

Middle management had a higher level of strategic understanding than the operational level pre strategy map. This can be attributed to middle management's general inclusion in the strategy process, as well as being included in more strategy progress meetings than the operational level. However, middle management had a lower perception of "need to understand" business strategy than the operational level. This lower need to understand strategy is due to middle management feeling their specific programme, client, or project strategy is more applicable to them than the company strategy. This is reaffirmed in the results from the open questions in the questionnaires. Middle managements lower need to understand the strategy is in line with the conclusion of Lueg (2015) who mention that including middle management, and other levels, in the strategy development process would lead to a greater level of alignment and understanding of strategy goals.

The user interaction interviews showed that middle management was predominantly concerned with the practicality of the tool, the specific initiatives, and how it was relevant to them or their team. Middle managers were focused on specific initiatives or objectives, and curious about how one specific objective could be filtered down the strategy map and how it linked to the vision and initiatives. Additionally, middle management was more focused on their business line's strategy rather than the corporate strategy. Furthermore, middle managers made use of the industry and name filters more than the other levels, which links to the perception that the project or programme strategy is more relevant than company strategy. They were also more focused on tasks requiring their attention rather than on the "bigger picture" strategy. Middle management was therefore overall, mostly interested in the tasks that required their individual attention. This can be attributed to the multiple daily tasks that middle management is responsible for and are therefore more interested in the tasks that need

to be done, rather than the overall bigger picture. The focus of middle management on their individual tasks is line with the proposition by Floyd (2000), who mentioned that middle management are most likely to experience individual strategic role conflict.

Middle management had the smallest change in their strategic understanding and need to understand after the implementation of the strategy map. Their need to understand the strategy increased slightly which can be attributed to the filters in the final map linking teams and names to the strategy. Their actual understanding of the strategy did not change. This can be attributed to the content of the strategy map making use of current strategy content, which is already known to the middle management level, as well as their focus on specific elements rather than on the broader vision and strategy. Middle management was also not as active in the tool's development as senior management, and therefore do not exhibit the benefits that inclusion in the development has on increasing strategic understanding.

Middle management highly agreed that the strategy map is an effective tool for communicating strategy and increasing understanding. They reported the second highest score for the effectiveness of the map after the operational level. The primary benefits of the tool to middle management lie in its ability to make the strategy more personal by linking names and industries, as well as its ability to filter out the information they consider irrelevant. This is reaffirmed by Armstrong (2019) who mentioned that reports should not be overly complicated with unnecessary information, which would only confuse users. Their limitations were linked to the tool's ability to be incorporated into daily use, and whether it can guide daily tasks. Finally, middle management stipulated that they would use the tool monthly, more frequently than the operational level. This is due to them being responsible for specific initiatives and objectives, which can be tracked in the strategy map if measurable targets are allocated.

### **Senior Management**

The senior management/strategic level had the highest level of understanding and perception on need to understand the business strategy pre-map. This is expected considering this level's responsibility for the creation and communication of the strategy. Furthermore, the senior level felt that a better understanding of the strategy would assist with the communication of the strategy to the rest of the organization.

The user interaction interviews with the senior management level showed that the strategic managers were predominantly interested in how the corporate strategy links to the business line's strategy. Senior management favoured the interactive properties of the tool and mentioned that this interaction makes the strategy more tangible and encourages engagement with the strategy from the other levels. Due to senior management being responsible for the strategy communication, they were predominantly interested in how the strategy is communicated from a high-level vision and strategy, into corporate objectives and then business line objectives. Furthermore, they frequently questioned the position of the pillars in the map and whether they were allocated to the correct functional theme. This relates to the functions of a strategic leader as stipulated by Samimi et.al. (2022), as being responsible for managing conflicting demands and managing the information related to the strategy.

The results from the post questionnaire showed a large increase in both the senior management's understanding of strategy as well as their perception of the need to understand the strategy. They had the 2<sup>nd</sup> highest increase in strategy understanding, after the operational level, and had the largest increase in their need to understand the strategy. These increases can be explained using the results from the open questions, and interviews, in which senior management stated that the map assists with understanding the strategy and exposing gaps in it and clarifies how it can be used to communicate strategy to their teams. Additionally,

revisiting and analysing their strategies through a different framework assists with identifying any gaps in their strategy and the revision process further increases understanding. Furthermore, the lead role of senior management in the tool's development process reaffirms their role as strategy developers and communicators, and therefore increases their perception of the need to understand the strategy. Senior management's large increase in need to understand strategy relates to the fourth proposition of Armstrong (2019) who claimed that "Guidance results in greater learning, to the extent that it helps people to understand".

Senior management highly agreed that the strategy map is an effective tool for communicating strategy and increasing strategy understanding, despite scoring the effectiveness of the tool lower than the other organizational levels. The primary benefit of the map for senior management is its ability to collect all strategy information into a central location and communicate it in a simple and digestible manner. An additional benefit is the interactive properties making the strategy more "real" and tangible and inviting inquiry into the strategy. The limitations of the map are related to how the pillars and objectives can be visualised through the different levels of the map using causal links. However, this limitation arises due to the current strategy content not being developed according to the framework of the map and therefore lacking the causal links. Additionally, senior management mentioned that the tool could serve two primary functions. Firstly, as a tool to assist with collective strategy development with middle management, and secondly as a performance management tool for tracking the initiatives. As such, this level mentioned that they would use the tool monthly in strategy progress meetings as well as in business line townhall meetings.

The uses of the strategy map suggested by senior management closely relates to the twelfth proposition of Armstrong (2019) who mentioned that strategy maps would be effective for evaluation when it is used as a basis for interactive use and problem structuring.

### **7.1.2 Influence of the development process**

#### **Development process' influence on strategic understanding**

The research used the same sample group for the user interaction interviews as well as the questionnaire evaluations. Therefore, the influence of being included in the tool development process cannot be separated from the tool's specific effect on strategic understanding. Including employees in the tool's development process further increases their awareness of the organizations strategy and therefore also influences their strategic understanding and need to understand the strategy. This was confirmed by Lueg (2015) who mentions that including other organizational levels in strategy development will increase their alignment to the strategy and understanding of the strategy goals.

The influence of the tool's development process is particularly evident in the change in senior management's strategic understanding. Considering senior managements prominent role in developing the strategy, as well as them having the highest pre-map level of understanding, reasoning would suggest that they would not have a large change in strategic understanding. However, senior management reported the second largest change in strategic understanding and largest increase in need to understand. These increases occurred despite this level ranking the tool's effectiveness lower than the other organizational levels. Senior management was, however, more active than the other levels in the development of the tool through regular meetings and the customization workshop. Their large increase in strategic understanding can therefore also be attributed to their inclusion in the development process of the tool.

Given the influence of the development process, it can therefore be hypothesized that the implementation process of other strategic tools would also increase employees' strategic understanding and need to understand strategy. Following this, if the objective is to increase

strategic understanding throughout the organization, then employees throughout the hierarchy should be included in the development process.

### **Development process' influence on strategy coherence**

Describing the company's existing strategy using a different framework to the framework that was used to develop the strategy, allowed for a different lens to analyze the strategy from. By doing so, inconsistencies and gaps in the strategy were identified and could be used to improve future strategy development. Examples of this were interchangeably using "objectives" and "initiatives", which resulted in some initiatives being too abstract to be implemented, or objectives not having concrete actions to be implemented. Additionally, the framework highlighted "pillars" that were key in the company's strategy such as quality and health and safety, that were not elaborated on in the strategy. Addressing these inconsistencies would lead to a more coherent strategy and therefore improve its communication. The identification of gaps in the strategy directly relates to the purpose of the strategy map as per (Kaplan & Norton (2004).

Identifying these inconsistencies and gaps, highlights issues in the current strategy to the senior management, and therefore influences their perception on their need to understand the strategy. To minimize these inconsistencies a strategy development Excel was developed that makes use of various dropdowns to ensure that the language used remains consistent and each objective has initiatives allocated to them. The current strategy was stored in this program and fed into the strategy map. This visualized the gaps of the current strategy in the strategy map and resulted in confusion from the participants about the strategy content.

The process of using a new framework to describe a current strategy therefore has a large influence on identifying inconsistencies, improving coherence, and increasing need to understand strategy. It can therefore be hypothesized and reasoned that developing and implementing a different strategy tool with the same process, would also have a positive impact on improving strategy coherence and thereby improve the need to understand strategy.

#### **7.1.3 Comparison of "need to understand" vs understanding**

Overall, both strategy understanding and need to understand strategy increased in all the participants. However, need to understand strategy overall increased more than the actual understanding. This trend is particularly evident in the senior management group. The most notable increases were in operations increase in strategy understanding and senior managements increase in need to understand strategy. Middle management only saw small changes in both understanding and need to understand. These results highlight the influence of having previously been included in strategy development, as well as the influence of the strategy map development process. The results can be explained by comparing the similarities and differences between the levels.

The difference between senior management and the other levels is their large increase in need to understand strategy, where the other levels only reported a smaller increase. Compared to the other levels, senior management was far more active in the map development process. This therefore implies that being active in the development process has a large influence on need to understand strategy.

Operational management had the highest increasing in strategic understanding, followed by senior management who also had a large increase. However, middle management showed a very slight increase. The difference between the operational level and higher levels is that they were not previously involved in strategy development. Their increase in strategy understanding therefore shows that the strategy map increases strategy understanding more

when participants have not been previously involved in strategy. The difference between senior management and middle management lies in their involvement when developing the strategy map. Their increase in strategy understanding can therefore be attributed to the development process. This is in line with the sixth proposition by Armstrong (2019) who mentioned that “Strategy maps will be effective for facilitating initial communication of strategy to groups with low subject-matter knowledge, such as across functional areas.”

It can therefore be reasoned that the process of developing the tool has a positive influence on both strategic understanding and need to understand. Additionally, the tool itself is more useful at increasing strategic understanding within employees who have not previously been involved in strategy development.

#### **7.1.4 Strategy tools as boundary objects.**

The theory on viewing strategy tools as boundary objects states that viewing how users interact with a tool and where they place their importance, can assist with overcoming vertical boundaries between the hierarchical levels and horizontal boundaries between projects. Considering strategy development and implementation as being predominantly a top-down approach, this often results in senior management developing and communicating the strategy in their own methods and not considering the influence of the other organizational levels, which may result in lower of alignment from the lower organizational levels.

Operational management is interested in the overarching vision and strategy and how their role fits into this. Middle management is interested in specific initiatives that apply to themselves and their teams. Senior management is interested in how the strategy changes from a corporate to a business line level. If each of these primary uses of the tool can be incorporated into the strategy map, each level will relate more to the strategy. This approach changes strategy communication from a top-down approach to a distributed approach which considers how the other organizational levels interpret and digest strategy information.

Therefore, if the strategy is developed and communicated according to the ways in which the various levels interact with the map, it would result in greater cohesion of the strategy content amongst the various levels. This increased cohesion will further increase strategy understanding. This closely relates to the recommendations of Armstrong (2019), Spee (2009), and Vuorinen (2018), who state the importance of understanding how users utilize a tool, and incorporating their perceptions may increase understanding.



## **7.2 Validity of the research**

The validity of this research is discussed in terms of its internal validity and then extended into its external validity according to Yin (2018).

### **7.2.1 Internal Validity**

This research was carried out with a limited sample size, consisting of eight participants from a single business line within a diversified organization. To address potential limitations stemming from this single-business-line focus, it is worth noting that the chosen business line closely aligned its strategy with the overarching corporate strategy. As a result, the findings from this business line may reasonably be extrapolated to the broader organization. Moreover, the selection criteria for the eight participants were intentionally designed to encompass a wide array of backgrounds, including differences in hierarchy levels, disciplines, projects, and programs. This deliberate diversity was aimed at ensuring a comprehensive range of responses during both the questionnaire and interview phases. It can therefore be inferred that the organization, and other similar business lines and organizations will produce the same results. To extend this validity further, future research should be conducted within different business lines.

Despite the diversity among participants, there were notable similarities in the responses of individuals at the same hierarchy levels. This suggests that the findings may have applicability not only to the studied organization but also to similar business lines and organizations. To enhance the generalizability of these results, future studies should aim to replicate this research in different business lines.

This research also highlights the influence of involvement in the tool development process on enhancing strategic understanding, particularly evident in the changes observed among senior management. This suggests a potential correlation between tool development and increased strategic understanding. However, to strengthen the validity of this hypothesis, further research should investigate the impact of tool development processes on other tools and should incorporate a control group that remains uninvolved in the development process.

Lastly, the limitation of the small sample size, which restricts the statistical significance of the quantitative results should be noted. Consequently, these results were employed primarily for descriptive purposes. As such, caution should be exercised when attempting to extrapolate the degree to which strategic understanding might increase in other business lines or organizations based solely on these findings. Future research with larger sample sizes can provide more robust statistical insights into this matter.

### **7.2.2 External Validity**

Given the specific focus of this study on a particular business line within a diversified organization, it is important to acknowledge the limitations in generalizing these results to predict the behavior of employees in organizations operating within different strategic contexts. However, the noteworthy consistency in responses observed among participants at each management level suggests that employees occupying similar management positions in organizations or business lines with a comparable strategic context might yield similar outcomes. To enhance the external validity of this research, and expand the scope of its applicability, it is advisable to undertake similar studies across a diverse range of business lines and organization types. This broader research approach would allow for a more comprehensive understanding of how various strategic contexts impact employee behavior and strategic understanding, thereby offering valuable insights for a wider array of organizational settings.

### 7.3 Limitations of the research

Several important considerations and limitations should be acknowledged in this research:

**Time limitations:** Evaluating strategic alignment and organizational performance should ideally be measured over an extended timeframe. However, due to the constraints associated with this study, this analysis primarily focused on strategic understanding as a component of strategic alignment, rather than examining strategic alignment comprehensively.

**Absence of a control group:** This research did not incorporate a control group that was not uninvolved in the strategy map development process. Consequently, it is challenging to separate the influence of participation in the tool's development from the influence of the tool itself. Future studies should consider the inclusion of control groups to separate these effects more clearly.

**Limited organizational scope:** The research was conducted within a single diversified business unit of a larger organization. Consequently, the findings are most applicable to organizations with similar diversified strategies.

**Small sample size:** The research utilized a small sample group consisting of only eight employees across three organizational levels. This limited sample size restricts the statistical relevance of our quantitative questionnaire results. To mitigate this limitation, we used these quantitative results primarily as exploratory indicators of the tool's effectiveness, complemented by qualitative data gathered through interviews and open-ended questionnaire responses.

**Specific business line selection:** It's important to note that the chosen business line represents the largest segment of the organization, constituting approximately 60% of its operations. Moreover, the strategy of this business line aligns closely with the overarching organizational strategy. Consequently, these results can reasonably be extrapolated to the broader organization, but caution should be exercised when applying them to organizations with different structures or strategies.

**Limited interaction time:** The interaction time with the final strategy map was relatively short, approximately one hour. To comprehensively assess the map's influence on strategic understanding, a more effective approach would involve implementing the map at the commencement of a fiscal strategic cycle, utilizing it throughout regular strategic progress meetings, and subsequently measuring its impact at the conclusion of the cycle.

**Content gaps in the strategy map:** The strategy map employed in this research did not align perfectly with the framework of the organization's strategy. Consequently, there were gaps and flaws in the map's content. While efforts were made to customize the map to enhance its effectiveness in conveying the overall strategy, these limitations, such as missing initiatives and objectives, could have constrained its ability to enhance understanding.

Acknowledging these limitations is crucial for a comprehensive understanding of the research findings and their applicability in various contexts. Future studies can build upon these insights to refine methodologies and address these limitations more effectively.

## **7.4 Added value of the research**

### **7.4.1 Scientific relevance**

This research contributes to the scientific field of strategy tools in the following ways. Firstly, the strategy map was selected to be researched further as various literature sources mention the lack of information on the strategy map when compared to the balanced scorecard [ (Armstrong, 2019), (Rigby & Bilodeau, 2018), (Lueg R. , 2015)]. Secondly, the research considered the influence of all three levels in the hierarchy, rather than focusing on a single level. This is built on the recommendation of Armstrong (2019) who stated that existing research on the strategy map focuses on top management and does not address the other organizational levels. Thirdly, the research addresses recent literature recommendations that call for new studies to address how strategy tools are interacted with in practice. The research uses theory on boundary objects from Spee (2009) to address the recommendation from Vuorinen (2018) who mentioned the importance of documenting how strategy tools are used. Additionally, Vuorinen (2018), states that the development of tools are often not covered in literature. This research therefore provides an in-depth stepwise process on how the strategy map was developed. Finally, this research provides a qualitatively and explorative measure, using descriptive statistics, to measure the effectiveness of the strategy map. This is based on the recommendation of literature sources that state that objective measurements of tool's effectiveness are limited [ (Vuorinen, 2018), (Decoene, 2006)].

### **7.4.2 Practical relevance**

The practical relevance of this research is that a tool was developed that demonstrates positive results for increasing and organizations strategic understanding. The comprehensive description of the tool's development process serves as a blueprint for replication in other organizational settings. Moreover, the research contains valuable insights into how diverse organizational levels engage with the tool and their feedback, offering a roadmap for future improvements in strategic communication tools.

Additionally, this research identified the advantage of using a different framework to analyse and communicating an existing strategy. Therefore, this recommendation can be used in practice by organizations looking to identify gaps and inconsistencies in their strategy.

## 8. Conclusion

The overarching aim of this research was to target employees strategic understanding and thus identify methods of increasing strategy understanding throughout an organization. This raised the objectives of the development of a strategy communication tool, an exploration of how employees across various organizational levels interacted with the tool, and finally measuring the tool's influence on strategic understanding. In this concluding section the research findings are consolidated, and summaries of responses to the sub-research questions throughout the report are provided. The primary research question *"How does interacting with a strategy communication tool influence an employee's understanding of business strategy?"* is then addressed. The results and discussions are also used to extrapolate broader insights and conclusions regarding the development and implementation of strategy communication tools for increasing strategic understanding.

**SQ1:** *"What is strategy and strategic alignment and why is it necessary for an employee to understand business strategy?"*

Organizational strategy is comprised of an organization's vision and goals, and the objectives, initiatives and resources required to achieve those goals. The organizational strategy can be separated into corporate strategy which guides the entire organization, and business strategy which guides individual business units. Strategic alignment is the concept in which all resources are aligned to the organizational strategy resulting in an increase in organizational performance. Internal strategic alignment is the alignment of internal resources and processes to the strategy and is created by first creating strategic understanding through communication and then establishing agreement on strategic goals. It can therefore be inferred that increasing an organization's level of strategic understanding through effective communication of the strategy, would increase internal strategic alignment and therefore in turn increase the overall organizational performance. Increasing an employee's strategic understanding may therefore have positive benefits for organizational performance.

**SQ2:** *"What tools exist to improve employees' understanding of strategy, and how can an interactive strategy communication tool be developed?"*

Literature suggests that the first step to creating a good understanding of strategy is through effective communication of it. Strategy tools exist that assist with internal communication of strategy, such as the strategy map and balanced scorecard. Although both these tools have gained popularity, there remains a notable gap in research regarding their practical effectiveness and utilization, particularly the strategy map. The balanced scorecard is a performance management tool that allocates objectives and initiatives according to four perspectives or themes. The strategy map is a visual representation of the balanced scorecard and represents the objectives and initiatives according to pillars within the four perspectives. The purpose of the visual representation of the strategy map is to simplify high-level strategy into easily understandable topics that can increase understanding of the strategy throughout the organization. Considering the scarcity of research into the effectiveness and use of the strategy map compared to the balanced scorecard, this research selected the strategy map as the strategy tool to be researched further.

By following the framework of a strategy map developed by Kaplan & Norton, (2004), and using the stepwise method to develop a strategy map created by Perez-Franco (2010) a strategy map can be developed for an organization. By using theory on the properties of dashboards, together with a software that allows for interactive properties, the map can be converted into a simplified and interactive one-pager format. An interactive strategy map was developed for this research using Microsoft PowerBI, using research through design

principles. Power BI was chosen for the strategy map as it offers the possibility of creating visually appealing, interactive, and one-page dashboards, which aligned with the stipulated design requirements. An additional key factor in the selection of this software is its ability to integrate data from familiar sources like Excel, Word, and PowerPoint, which used by the organization for strategy development and communication.

To address the recommendation of recent literature that states that the development process of strategy tools is rarely discussed, the development process of the strategy map is discussed in detail in the research. The user experience interviewees proved to be highly effective in gaining information on how the various organization levels interpret and digest strategy information. The feedback was paramount in developing a tool that can be utilized by all organizational levels.

Furthermore, this research found that using a new strategy tool framework to analyse and communicate an existing strategy, is highly effective at identifying gaps and inconsistencies in existing strategy. These inconsistencies can then be addressed to improve the coherence of the strategy.

**SQ3:** *“How is strategy currently developed and communicated in the organization?”*

The organization currently develops its strategy annually and communicates this strategy through presentations in companywide meetings called “Townhalls”. These presentations are archived in the company's centralized storage system for future reference. However, the organization's annual surveys consistently indicate that employees' overall understanding of the strategy remains stagnant, showing no improvement over time. This lack of progress in strategic understanding can be linked to the manner and frequency with which the strategy is communicated and stored. To address this challenge and enhance strategic understanding among employees, the organization could benefit from implementing a tool that facilitates communication of the strategy and efficient storage in a centralized location. Such a tool could bridge the gap by presenting the strategy in a more accessible and engaging manner, potentially leading to improved understanding and alignment with organizational objectives.

**SQ4:** *“How do users from the different organizational levels interact with the tool?”*

The user interaction interviews interviewed eight employees, representing the three hierarchical levels (senior, middle and operations), while interacting with the strategy map. The objective was to analyse how they interacted with the tool, and to gather feedback for potential improvements. These participants were deliberately chosen from diverse disciplines and projects to ensure a wide range of perspectives, thereby allowing for the generalization of results to the broader organization and similar contexts. Despite the inherent diversity among the participants, interviewees within the same management level returned comparable results. Consequently, it is reasonable to infer that if different participants were selected, the research would likely have generated similar outcomes. This suggests that these results can be applied to infer similar responses from managers across the rest of the organization, or other organizations operating in similar strategic contexts.

The operational level was predominantly interested in the overall corporate strategy, how it is represented according to pillars, and how their role fits into the overall strategy. This heightened interest is attributed to the infrequent communication of the overall strategy to this level. Additionally, since no specific initiatives were allocated to them, they gravitated towards a broader understanding of the strategy.

Middle management, on the other hand, was predominantly concerned with specific initiatives and objectives that were allocated to them or their teams. They therefore used multiple filters

that made the content more personalized and relevant to them. Middle managers also emphasized the importance of incorporating their client's project or program strategies into the strategy map, viewing them as equally significant as the organization's strategy.

Senior management's focus was on how the corporate strategy links to the business line's strategy, and how each of the pillars changed according to business level. Senior management felt that the tool could be used to facilitate discussions around strategy, assist with strategic planning, and be used as a performance management tool.

The primary advantages of the strategy map were identified as its ability to visually convey the overarching strategy through perspectives and pillars. Furthermore, the interactive filters allowed individuals to break down the strategy into smaller, more digestible segments, which enhanced understanding. The interactive features made the strategy tangible and encouraged inquiry into the strategy contents. Conversely, the primary limitations of the map were linked to the quality and accuracy of the content, which is due to the existing strategy not having been developed according to the strategy map framework. Consequently, it can be concluded that an effective strategy communication tool should encompass the key elements of visually representing the overall strategy, interactive features with filters, incorporation of project and program strategies, and attention to the accuracy of strategic content.

**SQ5:** *"To what extent does interaction with the tool change an employee's understanding?"*

To gain an indication of the extent to which the strategy map changed an employees' strategic understanding, the research made use of a pre and post questionnaire that required interviewees to rank their level of agreement to various statements on a 5-point Likert scale. These questions were designed to gauge both the employees' level of strategy understanding and their perceived need to understand the strategy.

Operational management demonstrated the most significant increase in strategic understanding and rated the tool as highly effective. Senior management, although starting with a relatively high level of understanding before the strategy map, also showed a notable improvement, even though they rated the tool's effectiveness lower compared to the other management levels. However, senior management was more active in the tool's development than the other levels. It is worth noting that senior management played a more active role in the tool's development than other levels. Conversely, middle management exhibited only a marginal increase in strategic understanding. From these observations, two key conclusions emerge. Firstly, the strategy map proves to be highly effective in communicating strategy to employees with limited subject matter knowledge, as shown in operational management's increase in understanding. Secondly, the involvement in the development process of the tool appears to be just as effective in enhancing strategic understanding as the tool itself, as indicated by the increase in understanding among senior management who were actively engaged in the development process.

Furthermore, senior management exhibited the largest increase in their perception of the need to understand strategy despite their role in strategy development and communication and having the highest pre-map scores. In contrast, the lower two levels displayed marginal increases in their perception of needing to understand the strategy, despite starting with lower pre-map scores. This notable change in senior management's perception therefore be linked to their active participation in the tool's development process. Consequently, it can be inferred that including managers in the development process of a strategy communication tool significantly influences an employee's perception of their need to understand strategy, particularly within the senior management level.

**Primary RQ:** *"How does interacting with a strategy communication tool influence an employee's understanding of business strategy?"*

This research identified a method of developing an interactive strategy map, analysed how employees across the organizational hierarchy interact with it, and measured its effectiveness in increasing strategic understanding. Considering the positive correlation between implementing the strategy map on the sample group's level of strategic understanding, and perception of need to understand the strategy, it can be concluded that implementing an interactive strategy map is a useful tool for increasing strategy understanding. Although an interactive strategy map is an effective way of communicating strategy, the process of developing and implementing the tool is also a highly effective method of increasing strategic understanding.

As previously mentioned, the process of re-evaluating an existing strategy with a new framework illuminates inconsistencies and gaps in the existing strategy, thereby presenting an opportunity for improving the content and increasing the coherence of the strategy. This process is especially beneficial for senior management, who bear responsibility for strategy development. While this research developed a strategy map as the chosen tool, it is reasonable to infer that applying a similar process with a different strategy tool would yield similar opportunities for identifying inconsistencies and increasing coherence.

Additionally, this research confirmed that the strategy map increases strategic understanding of employees who have a low subject matter knowledge of the strategy. Furthermore, the research also found that active involvement in the development of the tool also increased strategic understanding. However, the extent to which the process, compared to the tool, influences the understanding was not researched. It can however also be inferred that active involvement in the implementation process of another strategy tool would also increase strategic understanding.

Furthermore, adopting a perspective that views a strategy tool as a boundary object, and conducting user experience interviews, enables the incorporation of feedback from various hierarchical levels. By gaining insights into how each level interacts with the strategy and what aspects they consider most important, strategy development and communication can be tailored to allow for greater cohesion within the strategy and the organization. Traditionally, strategy development and communication tend to follow a top-down approach driven by senior management, often neglecting input and feedback from lower levels. By investigating strategy implementation and understanding from a bottom-up perspective, the obtained feedback can be integrated, resulting in improved strategic understanding and strategic alignment.

The results of this research were obtained from diverse participants who returned comparable results with other interviewees from the same management level. These results can therefore be used to infer similar outcomes of implementing an interactive strategy map in other diversified organizations or business-lines.

## 9. Recommendations

The recommendations of this research are first discussed according to recommendations for future research. Thereafter, recommendations for practice, the organization specifically, and recommendations per organizational level are elaborated on.

### 9.1 Recommendations for further research

**Evaluate other strategy communication tools:** This research found that the process of including managers in the development of a strategy communication tool also has a positive influence on their strategic understanding and perception of their need to understand the strategy. This can be used to infer that the process of implementing a different strategy tool would have the same outcome. However, to confirm this, it is recommended that future research assess whether the positive influence observed in this study, when managers are involved in the development process, holds true for alternative strategy tools.

**Incorporate a control group:** To separate the influence of the development process from the influence of the tool itself, it is recommended that future research should incorporate control groups that are not part of the tool's development. This approach allows for a comparative analysis of the two factors.

**Expand sample group size for quantitative analysis and longitudinal measurement of employee understanding:** When quantitatively measuring the effectiveness of a strategy communication tool through questionnaires, researchers should aim for larger sample sizes to ensure statistical significance. Moreover, it is advisable to develop, implement, and use the tool throughout the fiscal year, measuring its effectiveness at the strategic cycle's end. This extended interaction period allows participants to better grasp the tool's content and purpose.

**Cross-organizational comparative research:** A diverse group of interview participants were selected to ensure a broad range of results. Despite having varying characteristics in terms of work disciplines, projects and programmes, the participants on each management level returned similar results and behaviours. These results can therefore be used to infer similar outcomes from other diversified organizations and business lines. However, to increase the external validity of research findings, it is recommended to conduct similar studies in organizations with varying strategic contexts. This approach enables comparative analysis and a broader application of the results.

### 9.2 Recommendations for practice

Considering the positive influence of the interactive strategy map on employees' strategic understanding, this research recommends developing and implementing an interactive strategy map for any organization wanting to increase their employees' strategic understanding.

**Align Strategy Development with the strategy map framework:** To optimize strategic planning, align the development of the upcoming year's strategy with the framework provided by the strategy map. This alignment ensures that strategic objectives are consistently connected to the organization's overarching goals, and removes any inconsistencies and gaps related to using a new framework to describe a strategy that was developed according to a different framework.

**Regularly Incorporate the strategy communication tool:** Ensure the consistent integration of the strategy communication tool into routine progress meetings centred on strategy. By revisiting the strategy regularly using a tool that clearly communicates the strategy in a central location, employees will over time gain a better understanding of the strategy and the tool.



**Focus on a descriptive strategy process:** This research recommends that diverse context organization's follow a more methodical strategic development process of first developing corporate strategy and then business line strategy. This ensures that business lines strategies are not developed independently to the corporate strategy, and will minimize inconsistencies in strategy development, implementation, and strategic nomenclature used in the strategy communication. The outcome of this will be a higher level of coherence in strategy content.

**Involve middle management in strategy development:** Actively engage middle management in the strategy development process. Their participation enables the integration of various projects and programs into the overarching strategy, enhancing its relevance and applicability across different departments.

**Conduct user interaction interviews:** Before finalizing the implementation of a strategy communication tool, conduct user interaction interviews. In these interviews, focus on explaining the tool's principles rather than specific content. This approach ensures that users evaluate the tool's overall functionality and utility, rather than getting caught up in specific details.

**Enhance strategic understanding at different levels:**

- For the operational level: include the overarching corporate vision and strategy together with the details of the strategy. Furthermore, if the strategy content is more specifically applicable to the operational level, rather than broad objectives, they would use the tool more frequently and therefore further increase their understanding.
- For middle management: include their specific project and programme strategies into the map. Additionally, filters that make the strategy more specific and relatable such as name searches, projects and industries should be included.
- For senior management: include the option to toggle between corporate and business line strategy. In this way, senior management can easily see how the corporate strategy translates into the business-line's strategy, and appropriate objectives and initiatives can be created.

**Optimize Strategy Communication Tools:** Overall, strategy communication tools should incorporate interactive features such as filters and colour coding while presenting content in a one-page dashboard format. These interactive elements promote engagement, facilitate inquiry into the strategy, and help users focus on relevant information.

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## 11. Appendices

### Appendix A: Interview transcriptions

All recordings and transcriptions of the user interaction interviews are confidential. For the full transcriptions contact the researcher or a committee member. The table below contains relevant key quotations from the interviews.

Table 5: Key quotations from transcripts

| Interviewee          | Key quotations  |
|----------------------|---|
| Operations Manager 1 | <p>“What might be nice is having less words on each perspective. Because you're talking about each one individually, so financial adjectives, you could put an information icon against each one. Maybe just so it's not a big bundle of word.”</p> <p>“Yes, I don't. If you read my responses to that questionnaire early yesterday, I sat and looked at it for a long time and I was like, I can give you some idea of the strategy. I think I'm on the middle term for a lot of them (Likert scale) and that I put agree. But then I went back, and I was like, well I don't agree because I couldn't tell you the specifics of what we're trying to do. I can tell you we want to grow, we want to increase margin, but these are all generic business things.”</p> <p>“Also, just on this, is there a way of putting a clear button so you can clear because you could select, I guess five or six of these whatever. Otherwise, you get deep into filters and don't know how to undo them. So, I haven't clicked on corporate.”</p> <p>“Maybe trying to make that a little bit more explicit might be beneficial. Where is business line and you know global business or whatever up there. But now it's usable. It's pretty good. I like it. “</p> <p>“Yes, I already have picked up a few things here. There are things in here I didn't know. Focuses of the business, and I quite like the way it drops into the various pots. If we consider that, like a brand thing and it's like, OK, we need to look at these things, but no, even just if somebody, as you said to me, if somebody talks about these in December, you might say you understand the strategy. But I couldn't tell you one thing on that list because so much has happened since November, December.”</p> |
| Operations Manager 2 | <p>“Some apps and some software, you must follow the tool guide. So, it locks the system down until you follow the tool guide. I guess with the screen tracking, first you must do this then you must do that, then you must do this, and then this. Because sometimes stuff like this might not be that obvious.”</p> <p>“Yes, because they are trying to understand what the actual strategy is. Yes, because, I mean, if you want to performance measure then it should be a back of house thing.”</p> <p>“OK, so that is where I think this stands out. Because me and my learning, should be different to somebody else's measuring.”</p> <p>“Then if I wanted to get an idea of what that needs to be done, then this objective should have more of a description. So, there's guidance because</p>   |

|                             |   |
|-----------------------------|---|
|                             | <p>that's what they kind of want to see. Because as a person who's trying to learn, why should my interest be in measurement? I'm interested in what it is. That's the whole point, isn't it? Is to give me the understanding. Is that not the aim of this?"</p> <p>"Yes, because this here is why I love this. Because everyone comes into the company wants to know what they need to do. So, this is a process and measuring how well we're doing and delivering that process."</p> <p>"So, you, you're translating that into something we can probably see easily."</p> <p>"Now all the icons disappear, but if you don't see anything it draws your attention a lot more. I see other sites and other web based or app-based products do that. They have everything just kind of go grayed out and disappear or fade away. So that's visually what you want."</p> <p>"So, the initiative should be the biggest content in my eyes. Each thing filters that further down. So, initiative would be right at the bottom, but that's the actual action item, yes. So, I would also make that darker in this text color than the other text. That's what you want people to read. The vision is a higher level and more abstract and the strategy is what we are doing. So maybe then, because people read top to bottom, make that clearer."</p> <p>"You've got financial sticking right up the top there. So that's essentially the final goal really of a business is to make profit and to increase profit margins. So again, the flow is the idea is to increase profit. We're going to do that through increasing our productivity and growing and we're going to do that by offering these services to the clients and to offer these services to clients, we must do these processes and to do these processes. These are the skills we need. Yes, right now following it."</p> |
| <p>Operations Manager 3</p> | <p>Not available.</p>   |
| <p>Middle Manager 1</p>     | <p>"One issue I'm having is if you double select two, these essentially act as slicers, yes. So, if you select them both, it cancels out everything. So that's one thing. You want to be able to select more of them or not really."</p> <p>"I thought this is maybe just like the high level heading the tracking. Who's dealing with it? What's the action? OK, it's more like a tool of minutes rather than the tool of just the action and confirm what needs to happen."</p> <p>"So, the vision is basically the "what" and is that what the company's going to do? The big what? And then the strategy is the how. That is the company strategy on growth, because I'm assuming that once we've identified and realized market opportunities, once we've grown that angle of it, we need people. So again, all the icons that are the same colour as the growth, those are the icons that are linked to the growth theme. So, all the yellow icons are linked to the client theme? Or the blue to people."</p> <p>"So, if I'm an employee and I go on to this and I go OK, what's this my division? What is my team? Or you know what part of AECOM I work for, how does that contribute to the rest? Me as an individual. How do I contribute to this? "</p> <p>"Whereas if you look at the town hall presentation, you're thinking I am not sure I am. So, with thus we've dived it and said here I am. This is what my</p>   |

|                             |   |
|-----------------------------|---|
|                             | <p>department does. How do I contribute. So, you can dive in, in, in and then you can see what you can do rather than just see what the overall company does because the overall company is too big anyway. So, you can't see it all. That would be a good target. And then as you said, how do I contribute as an individual “</p> <p>“I am middle manager 1, I want what affects me exactly.”</p> <p>“The top down is suitably vague, and where it materializes is bottom up, is 100% detail. How does it translate up exactly? “</p> <p>“The client couldn't care if that meets the corporate strategy.”</p> <p>“But you could go listen, how do I consolidate it in the brand? What do I as middle manager 1 t do to contribute to the AECOM brand? And we could go on the map and find out. You can read through these and decide OK, how does this happen? How can I influence this?”</p>   |
| <p>Middle<br/>Manager 2</p> | <p>“No managers assigned. So, if I would be the user, I would be worried on the fact that we don't have a manager.”</p> <p>“it says obtain best place to work recognition making AECOM an employer of choice, marketing investment in real estate conferences and events. Without identifying the market 1st that you want to aim for, then there's no relation between this activity and the market that you aim for, right?”</p> <p>“If there's no clear picture towards you on what type of market we're aiming for, then you might feel tempted as a new potential colleague saying, well, sorry I've talked to somebody else, and they have a very clear picture on the market. They're aiming for type of scope that I'm going to be involved in and therefore I'm joining that company because with you it's vague. So best place to work should be linked to the markets that you that you're the markets you aim for.”</p> <p>“I like the visual approach to this and that it works from top to bottom, so you can clearly select components in the whole chain of activities or maybe even from bottom up. You can say well, this is my interest. How does it relate to the to the top? I would like to test it on, however against a couple of examples.”</p> <p>“Just take an example. If we want to focus on fit outs, so we want to do more fit outs, that's part of our strategy, right? How do we do that? How does it relate to what? What do we put in as our financial impact? What do we want to achieve? Have we not identified that? If not, then we have of course, an initial gap analysis done. Or is it part of a market? So, what's the growth strategy? Do we put numbers to it? Do we say should at least do so and so many fit outs. That's initially how can we read that through the lines? Which elements can we Click to see the value?”</p> <p>“And can you link it to a timeline? Can it indicate where you are on your plan?”</p> <p>“Maybe it should have an option to link it to even an individual goal. So, in the Workday, maybe it's far off, but for example, if you would have a senior manager stating reinforce existing client relationship to client or set up a local</p> |

|                             |   |
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|                             | <p>Cam light program, that should have at least a concept a date. If it doesn't it's going to stay on there for ever and ever."</p>   |
| <p>Middle<br/>Manager 3</p> | <p>"To start with, this is something I really like because I always try to find the link between, you know, the big picture and what that means for us. I don't understand why if you go to PMCM certain things don't apply anymore?"</p> <p>"Because of the complexity of all the information we're getting, we're getting an overload, so we need to digest. So, most of the time if I can't get a message across in a couple of slides, my message is not clear."</p> <p>"I love the visualization. I always like to see things going up and down and green is good and red is bad and all of that."</p> <p>"I would have loved to see the other ones faded out. So still there but faded in the back, so you see the differences. Now I need to click back and forth, but I miss it here."</p> <p>"OK, but I would always still leave the icon then because it is still applicable. Because I would always leave the vision and association, so that I can still understand because now I'm losing my vision and strategy."</p> <p>"I just still think as that manager, you know, it's still overwhelming because it gives me so many things I need to focus on. So, to make sure that I meet the corporate vision, they're like 1-2, you know, so many icons and stuff."</p> <p>"To really understand, because in all day to day, because of the complexity, we focus less and it's overwhelming and it still has 25 initiatives."</p> <p>"Because like I said, I already noticed that I can't reproduce the AECOM strategy so easily. And you know, for AECOM, it's not good. If they don't do it on corporate level, then at least do it on a local level. We should make sure that everybody has those 3 buzzwords in their minds or whatever, you know?"</p> <p>"Yes, but it's also very nice in this map. That everything is popping out. Very good stuff."</p> |
| <p>Senior<br/>Manager 1</p> | <p>"Thinking about our priority markets that we've identified, which are for us the main area of focus. For you know from laymen perspective, you would expect to see those priority targets somewhere in the strategy map."</p> <p>"Yes, but then I would say maybe what would make sense is to have another button which appears which would be something like a new service. But when we say grow design services in Benelux, it's kind of offering a new kind of service to our clients in an area that we were not providing before."</p> <p>"I'm also trying to think within the framework of the strategy map. So, you would say in terms of growth strategy, how can we grow? We can grow either by entering new markets or by trying to multiply the variety of services that we're able to offer to our existing clients."</p> <p>"I'm fine with having core service as a pillar in that one, but it's just there's a bit of disconnect between what we say there and what we used to say in the slide. Because, I mean, what we were thinking about core on this has nothing to do with the productivity strategy."</p>  |



|                             |   |
|-----------------------------|---|
|                             | <p>“First, I would say the conceptual framework, or the strategy map I think is interesting. Why not use that concept just to try to explain step to step the strategy of the company?”</p> <p>“But what I found is specifically interesting in what you've done is the fact that at the end you have a tool. And a tool is an object around which you can discuss and try to interact with people so that they completely, you know, integrate the strategy as a living thing. That's what I think is particularly interesting. Because I think that one of the ways we can help people grow up something like a strategy or something, is also to try to make it more real by giving them tools with which they can explore or interact or input anything. And at the end have framework to interact with them.”</p> <p>“But at some point, you might want to also test if the level of involvement of people in the strategy, do they feel more involved in the strategy after having gone through that process? And do they think that they feel more in the position to grab the strategy and to be to make propositions or to influence the strategy and not to only understand.”</p> <p>“I mean that's very interesting, and I think at some point when you have gone through that process, I think we should also think about what's the next step for the strategy map and your tool. I think we can do many things with that. We'll discuss that, but maybe we could do think about, you know, having a larger kind of interaction with the team using that tool, trying many things that we can think about.”</p>  |
| <p>Senior<br/>Manager 2</p> | <p>“Well, I think as a first, the overview is clear because it's important that we in the strategy not only think about the growth aspect but also the more operational elements. So, we have the teams, the pillars coming back here in the end, the people, clients, growth. I'm thinking now if there is something else that we had in there?”</p> <p>“I mean, I think that is very interesting, but you know that you have in one click, so you can click on corporate strategy. The elements that you want to select because also I click now on one, but if I don't want to click on more things is that possible?”</p> <p>“If you investigate PMCM and you want to understand, I could think for example, OK, I'm really interested in how we will improve the brand and the ESG. You know if you then click on it together what is it that you find? You can look at it one or the other, but then you have the overview of it.”</p> <p>“OK and if we have to look to operations, do we also have for example corporate initiatives also flow down to local business lines, yes.”</p> <p>“Yes, it's an interesting thought because in the end, what we want to achieve is that people feel more, you know, part of the strategy. So maybe it sits within what you write.”</p> <p>“We could think about an explanation you know, how does your day-to-day job, links with these activities and then you know when you write on the initiatives maybe that is something that we can give a little bit more of an explanation.”</p> <p>“I wonder if it's not also better to have the what, the how, and the who. To make it a little bit smarter. I think for me the view is clear with the strategy map.”</p> |

## Appendix B: Pre-strategy map questionnaire

# Pre-strategy communication tool questionnaire

Research has shown that when strategy is understood throughout an organization, overall organizational performance increases. This research aims to measure an employee's understanding of strategy before and after the implementation of a strategy communication tool.

Participation is voluntary and all results are anonymous.

\* Required

1. I agree to my answers being used for research purposes \*

(No personal information is stored or linked to answers)

Agree

⋮

2. What is your level in the organization? (Senior, Middle, Operations) \*

Senior management is responsible for strategy development. Middle management is responsible for implementing the strategy and is often included in the development process. Operational management is responsible for daily operations and is not directly included in strategy development

Senior Management (Strategic level)

Middle Management (Project Director or higher)

Operational Management (Below project director)

3. How long have you worked for AECOM? \*

0-3 years

3-6 years

6-9 years

10+ years

4. How is the company strategy currently communicated to you? \*

5. Do you know and understand the AECOM corporate strategy? \*

Corporate strategy is the overall organization's strategy and guides the business line strategy

Strongly disagree

Disagree

Undecided

Agree

Strongly Agree

: Appendix A: Interview transcriptions

6. Do you know and understand your business line's strategy? \*

Business strategy is the business line's strategy and is guided by the corporate strategy.

- Strongly disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

7. Do you understand how your position fits into the business line and corporate strategy? \*

- Strongly disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

8. Do you understand how your daily tasks contribute to the business strategy? \*

- Strongly disagree
- Disagree
- Undecided
- Strongly Agree
- Agree

9. Do you feel it is necessary for you to understand the business strategy when executing your daily activities? \*

- Strongly disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

10. Can you elaborate on your answer to the previous question (Q9) \*

: Appendix A: Interview transcriptions

11. Would a better understanding of the business strategy change the way you in which you execute your daily activities? \*

- Strongly disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

12. Can you elaborate on your answer to the previous question (Q11) \*

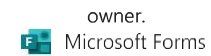
13. Do you think it would benefit the organization if you had a better understanding of the business strategy? \*

- Strongly disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

14. Can you elaborate on your answer to the previous question (Q13) \*

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This content is neither created nor endorsed by Microsoft. The data you submit will be sent to the form



## Appendix C: Post-strategy map questionnaire

# Post Strategy Communication Tool Questionnaire

This questionnaire is divided into two sections. The first asks you to evaluate the effectiveness of the strategy map and to give feedback on it. The second section measures if the strategy map (and being included in the development process) has changed your understanding and need to understand the business strategy from the first questionnaire.

All results are anonymous.

\* Required

- ⋮
1. I agree to my answers being used for research purposes \*  
(No personal information is stored or linked to answers)

Agree

2. What is your level in the organization? (Senior, Middle, Operations) \*

Senior management is responsible for strategy development. Middle management is responsible for implementing the strategy and is often included in the development process. Operational management is responsible for daily operations and is not directly included in strategy development

Senior Management (Strategic level)

Middle Management (Project Director or higher)

Operational Management (Below project director)

3. How long have you worked for AECOM? \*

0-3 years

3-6 years

6-9 years

10+ years

4. Do you think the strategy map is an effective tool for increasing strategy understanding? \*

Strongly Agree

Agree

Undecided

Disagree

Strongly disagree

5. What are the benefits of the strategy map? \*

6. What are the limitations of the strategy map? \*

7. Do you feel more attached to the AECOM strategy after being included in the strategy map development process? \*

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

8. How frequently would you refer back to the strategy map? \*

- Daily
- Weekly
- Monthly
- Yearly
- Never

9. Can you elaborate on your answer to the previous question (Q8) \*

10. Do you know and understand the AECOM corporate strategy? \*

Corporate strategy is the overall organization's strategy and guides the business line strategy

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

11. Do you know and understand your business line's strategy? \*

Corporate strategy is the overall organization's strategy and guides the business line strategy

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

12. Do you understand how your position fits into the business line and corporate strategy? \*

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

13. Do you understand how your daily tasks contribute to the business strategy? \*

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

14. Do you feel it is necessary for you to understand the business strategy when executing your daily activities? \*

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

15. Would a better understanding of the business strategy change the way you in which you execute your daily activities? \*

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

16. Do you think it would benefit the organization if you had a better understanding of the business strategy? \*

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

17. Do you have any other feedback, notes or recommendations to share? \*

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