

2015

The impact of checklists on organisational target segment selection

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University of Wollongong

**THE IMPACT OF CHECKLISTS ON ORGANISATIONAL TARGET
SEGMENT SELECTION**

A thesis submitted in fulfilment
of the requirements for the award of the degree

DOCTOR OF PHILOSOPHY

from

UNIVERSITY OF WOLLONGONG

By

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BA (Psych), MBA

SCHOOL OF MANAGEMENT, OPERATIONS AND MARKETING

2015

DECLARATION

I, Logi Karlsson, declare that this thesis submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the School of Management, Operations and Marketing, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged below. The document has not been submitted for qualifications at any other academic institution.

Signed:

Date: 12/05/15

ABSTRACT

Despite remarkable advancements in new technology in the past century, highly trained experts continue to make avoidable errors: planes crash, buildings collapse, trains collide and marketing units make bad decisions when selecting segments for targeting. Cross-functional teams are brought together in the hope that a range of different views will help to improve project outcome. Despite the extensive knowledge brought together in cross-functional teams, experts continue to make mistakes. Many disciplines have taken action and implemented simple and easy to use checklist, which have, despite their simplicity, significantly improved team performance. Checklists have successfully helped pilots during emergency landings, guided staff during complex medical procedures, and coordinated activities of different contractors when building skyscrapers. Despite the demonstrated usefulness in other disciplines, marketers to date have not explored the potential of checklists. While marketing textbooks do recommend the use of checklists, it remains unclear how exactly to develop and operationalise them and there is virtually no evidence of them being used in marketing practise. The aim of this research is to test, for the first time, the usefulness of checklists in a marketing management context and to gain insight into relevant parameters for checklist design. First, targeting practices in 223 US firms are investigated by surveying marketing managers. Checklist usage and its association with performance outcomes are assessed. Managerial preference for targeting checklists is also investigated. Using insights from the manager survey, the characteristics and properties of alternative types of targeting checklists are then compared in an experiment using 430 business students. Teams of three students had to make targeting decisions in the StratsimMarketing simulation, using one of three types of checklist developed for this study. Results from the manager

survey indicate that using checklists, or similar structured processes, is associated with higher segmentation (+27%), innovation (+26%), and business (+7%) performance. In the experiment, checklist usage significantly increased the number of inspected decision criteria when used by cross-functional teams, which in turn, prevented new product failure in the simulated market. Checklists do however have the potential to increase team coordination difficulties. In contrast with previous studies, findings from the current study indicate that discipline checklists have the potential to increase team coordination difficulties and thus defeating the purpose of their use. Adding a coordination step to discipline checklists does, however, significantly improve their usefulness. Teams with cross-functional roles – as opposed to conventional roles – performed better overall suggesting this may be the optimal team structure for solving complex tasks. A noteworthy finding from the manager study is that a segment assessment list developed by Lilien and Rangaswamy (2004) was found to be the most preferred list in literature.

ACKNOWLEDGEMENTS

My sincerest thanks go to all the people that have contributed to the completion of this dissertation. First of all, I thank my supervisors Professor Sara Dolnicar, Dr. Venkat Yanamandram and Professor Martin Natter.

Without Professor Sara Dolnicar I would never have had the opportunity to undertake this PhD. I thank you for sparking my interest in research, for your generosity and the support. Your mentoring is second to none.

To Dr. Venkat Yanamandram. I thank you for your invaluable support, for all your guidance, and for all our conversations and great times in the past.

To Professor Martin Natter. I was fortunate enough to work with you during your visit at UOW. It is safe to say that you significantly influenced my work. Thank you for the many long hours you put into this study, the invaluable support and all the tennis matches (you are still undefeated).

I would like to thank Mojtaba Amjadipour, Alexander Chapple, Eltaib Eltaib and Elly Hyam-Hobden for their assistance in the experiment stage, and Maree Horne for organisational support (you make HDR students feel like home). I would also like to thank my fellow HDR students for all the good times in the Research Wing. I thank my parents and parents-in-law for all the support and understanding, and to my two young children, Ninja and Noi, thank you for changing my perspective on life.

Finally, I dedicate this dissertation to my wife, who has always given me unconditional support and encouraged me to chase new adventures. Without you I would not have been able to do this. This PhD is for you.

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1 Introduction

1.1 Background to the research

“What is needed, however, isn't just that people working together to be nice to each other. It is discipline. Discipline is hard - harder than trustworthiness and skill and perhaps even than selflessness. We are by nature flawed and inconstant creatures. We can't even keep from snacking between meals. We are not built for discipline. We are built for novelty and excitement, not for careful attention to detail (Gawande 2009, p. 183).”

The history is full of examples where humans have not attended to every detail and, as a consequence, made bad decisions. This holds true for laymen, as well as trained experts, even in their own area of specialisation (Hasson 1997). Despite advancements in new technology in the past century which have resulted in various sophisticated decision support tools for managers and other experts (Fisher, Raman & McClelland 2000), the media repeatedly report human errors being the main cause of disastrous events in industries as diverse as aviation (Gumuchian 2013), railway operation (Pearson 2014), military training ('Seven US Marine Training Deaths Caused by 'Human Error' 2013), surgery (Talaga 2012), nuclear energy (Oi 2012), construction (Marris 2005), business (Egan 2013) and even zoo keeping (Franklin 2014). In many cases teams of experts from different disciplines are brought together for cross-functional collaboration, providing a range of expert views to improve decision making (Parker 2003) and solve complex problems (Kettley & Hirsh 2000). And yet we continue to fail.

What if we have actually found a possible solution for avoiding human error, but simply have not adopted it across all industries? In his book titled *The Checklist Manifesto*,

Atul Gawande (2009) reminds us of the power of one of the simplest forms of decision aids for avoiding human error: the checklist. Well known to those who are responsible for grocery shopping, checklists are useful for ensuring that certain things get done (Bosk et al. 2009). Checklists have proven extremely useful in situations that are truly complex and stressful (Gawande 2009): airplane pilots, for example, take their checklists very seriously (Gawande 2009). The benefits of checklist use in aviation are well known, and checklists have been used to assist crew members for decades (Gordon, Mendenhall & O'Connor 2012). Schamel (2012) describes how the crash of Boeing's Model 299 in the mid-1930s led to the design of the first checklist used in aviation:

“The pilots sat down and put their heads together. What was needed was some way of making sure that everything was done; that nothing was overlooked. What resulted was a pilot's checklist. Actually, four checklists were developed - takeoff, flight, before landing, and after landing. The Model 299 was not ‘too much airplane for one man to fly’, it was simply too complex for any one man's memory. These checklists for the pilot and co-pilot made sure that nothing was forgotten (Schamel 2012, p. 10)“.

Gawande (2009) demonstrates how this simple tool can be effectively used to avoid failure and improve performance for complex tasks in disciplines other than aviation, such as medicine, construction, and surgery. In his book, Gawande reviews a number of studies on the effects of checklists in various disciplines. Most of these studies focus on the medical context and demonstrate how checklists improve team performance and avoid team members from making serious errors. Providing a tool which helps users

avoiding failure is a major contribution to practice as failures in the medical context can have serious consequences, even death. The evidence presented in Table 1.1 suggests that checklists do improve performance in certain disciplines.

Table 1.1 Studies Investigating Checklist Performance (Gawande 2009)

Topic of investigation (Sourced from)	Industry	Team structure	Methodology	Measurement	Outcome
Central line infections (Berenholtz et al. 2004)	Healthcare	Cross-functional	Field test	Pre- and post-intervention	Checklist intervention estimated to have prevented 43 infections, 8 deaths and saved approximately \$2,000,000 in cost
Pain assessment (Erdek & Pronovost 2004)	Healthcare	Cross-functional	Field test	Pre- and post-intervention	Simple checklist intervention significantly improved pain assessment and treatment
Patient care (Berenholtz et al. 2004b)	Healthcare	Cross-functional	Field test	Pre- and post-intervention	The percentage of days on which patients received all care processes required increased from 30 percent to 96 percent after checklists were introduced
Hospital staff communication (Pronovost et al. 2003)	Healthcare	Cross-functional	Field test	Pre- and post-intervention	The percentage of residents and nurses which understood the goals of care for each day improved from 10 percent to 90 percent while using checklists. This led to a decreased patient length of stay from 2.2 days to 1.1 day
Catheter-related bloodstream infections (Pronovost et al. 2006)	Healthcare	Cross-functional	Field test	Pre- and post-intervention	Up to 66 percent reduction in bloodstream infections after checklists were introduced

Children surgical infections (Gawande 2009)	Healthcare	Cross-functional	Field test	Pre- and post-intervention	Use of checklists significantly improved the rate of post-surgery infections
Wrong-site surgery (Makary et al. 2007)	Healthcare	Cross-functional	Survey	Pre- and post-intervention	Operating room briefings (checklist requirement) implemented significantly reduced perceived risk for wrong-side surgery and improve perceived collaboration among personnel
Wrong-site surgery ('Preflight Checklist' Builds Safety Culture, Reduces Nurse Turnover' 2003)	Healthcare	Cross-functional	Field test/survey	Pre- and post-intervention	No wrong-side surgeries reported after checklist were implemented, employee satisfaction up by 19 percent, nurse turnover down by 15 percent and staff safety climate went from “good” to “outstanding”
Surgical safety (Haynes et al. 2009)	Healthcare	Cross-functional	Field test	Pre- and post-intervention	Death rate was 1.5 percent before checklists were implemented, significantly improved to 0.8 percent after implementing.
Human capital valuation (Smart 1999)	Venture capital	Functional	Interview	Historical performance evidence	Venture capitalists using checklist achieved much higher internal rates of return, relative to those using other assessment methods

Much like experts in other disciplines, marketing experts can make errors. There are plenty of examples throughout modern history where marketers have made poor decisions, often with serious consequences for their organisations (Haig 2005). In his book, Haig (2005) reviews some of the largest marketing mistakes of all time, where major companies such as Coca Cola, McDonalds and Kellogg's have been found guilty of making poor marketing decisions which in hindsight could have been avoided. Most of the cases reviewed were new product development projects where needs of the target markets were not met (Haig 2005). New products are often developed to fulfil unmet needs of market segments that are selected for targeting (Verhoef et al. 2011) and successful new products are extremely important for organisations in competitive markets (Drechsler & Natter 2013; Kester, Hultink & Griffin 2014). As products are often developed to fulfil unmet needs, it is understandable how poorly selected, or poorly defined target markets can negatively affect product success.

Organisations realised the importance of marketing as a separate function in the 1950s and 1960s (Webster 1992) and around the same time they discovered how identifying different customer needs could contribute to product success (Smith 1956). After having focused on selling to the whole market throughout most of the 20th century by means of mass marketing (Kotler & Armstrong 2005), organisations have now accepted that understanding customer needs and the market environment is instrumental for product success (Dennis & Macaulay 2003). Organisations have moved from mass marketing to splitting the market up into smaller consumer segments for improved product success (Aaker, Day & Kumar 2007) and new products are developed specifically to meet customer demands (Calantone & di Benedetto 1988). The development process is commonly a cross-functional exercise (Matt & Jantan 2009) where marketing decisions

are known to play a key role (Drechsler & Natter 2013). Despite the shift toward consumer focus and cross-functional collaboration, most new product developments fail to deliver the expected market performance (Lilien et al. 2002), similar to what was happening 50 years ago (Christian 1959). Here, poor marketing decisions are said to play a key role (Ogawa & Piller 2006).

Over 50 percent of new products fail in the first year (Sivadas & Dwyer 2000; Ogawa & Piller 2006) and close to 50 percent of resources spent on new product development is spent on products that either fail, or never see the light of day (Bhuiyan 2011). Developing new products is a costly process and improving the process would benefit a large number of organisations. Ogawa and Piller (2006) state that practitioners' misinterpretation of market segment needs and poor selection of market segments for targeting are key reasons for new product failure. Other researchers have supported this view, where the segmentation and targeting decisions have been said to affect organisational success (Dibb & Simkin 2010; Kumar & Shah 2011; Lilien, Roberts & Shankar 2013). Segmentation has now become one of the key strategic decisions a company makes (Porter 1985; Foedermayr & Diamantopoulos 2008; Tonks 2009), often embedded into more encompassing planning concepts such as the S-T-P (segmentation, targeting and positioning) process (Kotler & Armstrong 2010). Despite the important role segmentation now plays in marketing strategy, new products continue to fail market and marketers continue to make errors.

Dolnicar and Lazarevski (2009) revealed that managers have a poor understanding of market segmentation methodology and the poor understanding can lead to the selection of sub-optimal segments for targeting. More recent evidence indicates that many marketers (49 percent of a sample of 1004 U.S marketers) are in fact basing their

decisions on “gut feeling” when making important strategic marketing decisions (Adobe Systems Adobe Systems Incorporated 2014). This, and other evidence (Dibb 1998), suggests that decision support for key marketing decisions, such as target market selection is needed.

In one of the 50 most influential papers published in *Management Science* between 1954 and 2004 (Informs n.d.), John Little (1970) claimed that “easy to understand” and “easy to use” were among six key requirements marketing support tools need to fulfil if they were ever to be useful for marketers. Eisenstein and Lodish (2002) provide support for this claim by pointing out that if users do not understand the tools provided, they are less likely to use them. Often consisting of nothing more than a few steps to be followed in sequence, checklists can easily be perceived as an over-simplistic and non-expert tool. This is perhaps the reason why marketing scientists who see checklists as integral and valuable part of the marketing tool-set are rare and top marketing journals do not cover this method.

The idea of checklists is not new in marketing. Over half a century ago, Borden (1964, p. 12) described the marketing mix as “... an ever ready checklist as to areas into which to guide thinking when considering marketing questions or dealing with marketing problems”. Marketing has come a long way since this statement was made, now with increased emphasis on the use of data for decision making (Adobe Systems Incorporated 2014; Messinger 2014), which does come with added risk of sub-optimal results if not used correctly (Dolnicar & Lazarevski 2009).

Various methods have been proposed for the purpose of assessing segments for targeting in the last 50 years, such as the use of decision matrices (i.e. House-of-

Quality, Hauser & Clausing 1988), and segment assessment criteria which most textbooks recommend (i.e. Wedel & Kamakura 2000). Of the numerous different assessment criteria that have been proposed, none have been identified as being optimal for segment assessment and targeting (see Section 2.3 for a review of segment assessment criteria).

Despite the numerous methods and the extensive number of assessment criteria proposed in literature, there is still evidence that suggests that decision support that is simple to use and easy to understand is needed (Dibb 1998; Dolnicar & Lazarevski 2009; Adobe Systems Incorporated 2014). Addressing this is important as targeting decisions are long-term decisions fundamental for the success of company strategy (Hlavacek & Reddy 1986; Croft 1994; Hooley, Saunders & Piercy 2004). Given the success of checklists in the medical context, checklists may turn out to be similarly useful for critical marketing decisions such as targeting. Both basic marketing textbooks (such as Kotler et al. 2013) and specialised books on segmentation and targeting (such as McDonald & Dunbar 2004) recommend the use of segment assessment criteria, most of which could be translated into targeting checklists. In her paper, *Criteria guiding segmentation implementation: reviewing the evidence*, Sally Dibb (1999, p. 107) refers to the assessment criteria as “simple checklists of criteria”, without further discussing how the criteria should be operationalised in the form of a checklists.

After conducting a thorough literature review, no evidence of how the assessment criteria should be operationalised could be found, and it is unclear which of the many assessment criteria proposed in literature is preferred in practice. Checklists as a decision support tool have still not been embraced in marketing, perhaps because textbooks do not recommend them, or because poor marketing decisions do not kill

people, whereas failures in surgery, plane incidents, or poor skyscraper construction can do.

The studies presented in Table 1.1 show how checklists have improved performance in healthcare, but do not provide enough evidence to conclude that checklists could improve performance in the marketing discipline. Most of the studies in Table 1.1 are based on field tests in the medical context, and are based on pre and post-intervention assessments. Unlike laboratory experiments, field tests make it challenging to establish a causal relationship between the use of checklists and team performance and make it impossible to assess whether alternative versions of checklists could have led to even better outcomes. Most of the studies presented in Table 1.1 investigate problems where cross-functional teams are used for problem solving. This is relevant to marketing, as the marketing function is often joined by other organisational functions in cross-functional work when solving complex business problems (Jassawalla & Sashittal 2000; Sethi, Smith & Park 2001; Natter et al. 2008) such as developing new products. This is similar to complex processes in healthcare, aviation and construction where different experts are brought together to jointly solve problems. The underlying reasoning for using cross-functional teams is that having members from different functions increases the variety of information available which helps project team members to understand the design process more quickly and in turn improve the design process performance (Brown & Eisenhardt 1995). The functional diversity and varying perspectives in cross-functional teams do not always contribute to improved performance, and can contribute to various team issues (Chang & Yeh 2014). It can therefore be argued that cross-functional teams may require instructions on how to proceed with important strategic tasks such as targeting to avoid making serious errors. In fact, Gawande (2009) argues

that checklists are particularly useful in these types of social contexts as they coordinate communication between team members and can even challenge traditional power structures in teams. Improving coordination between team members should be a focus in any organisation, as team coordination improvements can positively impact teamwork outcome (Kraut, Fussell & Espinosa 2005).

Developing a good checklist is difficult and which tasks should be included needs to be carefully determined when designing checklists (Gawande et al. 2010). In Fox's (2010) taxonomy of checklists, five different checklist types are introduced (*task list* for solving technical problems in a step-by-step manner, *to-do list* which is for personal tasks, *troubleshooting list* to use after things go wrong, *coordination list* to coordinate team communication and *discipline list* to ensure that certain things are not forgotten when working on projects). Gawande (2009) does not provide guidance on which type to use in each case, nor does his review of other studies compare the use of alternative checklists (see Table 1.1). It is unclear from the literature which checklist type is best for each case. Although previous research indicates that checklists may improve performance, the extant literature has yet to consider any negative effects checklist may have on team coordination, which is critical to the success of cross-functional new product development teams (Mat & Jantan 2009). Despite the simplicity of checklists, the implementation of decision support tools can be time consuming, require considerable resources and introduce unnecessary bureaucracy (Hauser 1993; Howard 2010). Potential users may refrain from adopting checklists for those reasons. Howard (2010) argues that forcing teams to follow structured decision aids such as checklists could have the potential to reduce creativity and spontaneity in teams and disrupt team focus. As the coordination of both communication and actions are central aspects of

checklists (Gawande 2009), it is important to understand any negative side effects of checklist use.

1.2 Research objectives

Although theoretical criteria for segment assessment and targeting have been proposed in the literature, they do not provide sufficient guidance for practitioners (Dibb & Simkin 2010). How those key decisions are currently made in practice and which of the theoretical criteria is preferred is unclear. Given the success of checklists for solving complex tasks in other fields, designing simple targeting checklists could provide the structure needed to aid managers in avoiding the most common pitfalls. To study the potential of checklists for improving target segment selection is the key aim of this study. Specifically the following research objectives will be addressed:

Research objective 1: To understand how targeting decisions are currently made in practice.

Although there is a general agreement in practice that segments need to be assessed before being selected for targeting, there are not many publications that show which of the theoretical criteria are used in practice (Dibb & Simkin 2010) and how they are operationalised. Understanding this is important because poor target selection has been identified as one of the key reasons for product failure (Ogawa & Piller 2006). Thus, the first research aim is to investigate how practitioners currently assess and select market segments for targeting.

Research objective 2: To investigate whether following a structured approach for assessing and selecting target segments is associated with better performance in practice.

Following structured approaches such as procedures, guidelines and checklists is common in various industries and has been found to improve performance (Gawande et al. 2010; Chang, Du & Shen 2012; Gordon, Mendenhall & O'Connor 2012). Most of the studies identified were field test in the context of healthcare. The marketing literature does not reveal whether structured approaches are currently being followed in practice for selecting target markets, or whether structured approaches such as guidelines or checklists are beneficial for companies.

Research objective 3: To understand the impact of checklist use for marketing decisions on company performance.

In *The Checklist Manifesto* (Gawande 2009) a number of studies are reviewed where checklists significantly improve performance. None of these studies are in the marketing discipline. Evidence of the use of checklists in marketing is limited (see Section 2.4 for review). Whether checklists have the potential to improve marketing decisions to the same extent as they do in other industries needs to be systematically investigated. This is the third objective of this study.

Research objective 4: To understand how checklists for targeting decisions should be designed.

Gawande (2009) demonstrates how difficult it is to develop a good checklist in his field, surgery, and stresses that industries that rely heavily on checklists dedicate substantial resources to developing and optimising checklists. He suggests that checklists should be short, clear and include mission critical tasks (Gawande 2009). He discusses two types of checklists, one which lists tasks that

need to be completed, and another one which focuses on improving communication among team members. Gawande does not discuss which type best suits each case, nor does he provide any guidance for how to select the appropriate type of checklist. Both checklist types will be developed and their performance tested in this study.

Research objective 5: To understand if there are negative effects of checklist use on checklist user communication.

Checklists aim at influencing communication and coordination among team members, which in turn improve team performance (Gawande 2009). The nature of this influence needs to be investigated in the context of marketing. Although checklists have been found to improve various aspects of teamwork, the use of checklists have also been criticised for creating various team problems which may affect performance (Hauser 1993; Howard 2010). Thus, whether checklists function for improving strategic marketing decisions needs to be investigated.

Research objective 6: To understand how checklist use interacts with different team structures.

Cross-functional teams are used instead of conventional teams in practice to increase the variety of information available to team members, and to quickly solve any problems; this should contribute to better performance (Brown & Eisenhardt 1995). The varying perspectives can at the same time lead to various team issues (Chang & Yeh 2014) such as communication issues that can be the cause of serious errors (Gawande 2009). Gawande (2009) recommends the use of checklists to address communication issues but does not clearly describe which

type of checklist best suits each team structure. How checklist type and team structure interact needs to be investigated.

1.3 Structure of thesis

This thesis is organised into six chapters, as outlined in Figure 1.1.

Chapter two provides a review of the relevant literature concerning the strategic planning process and the key elements of the most commonly recognised framework for market segmentation and targeting (Kotler's S-T-P process). Furthermore, the chapter also provides a review of the teamwork literature and its relevance to targeting decisions in the context of new product development. The use of checklists for team decision making, and its impact on project outcome are also reviewed. The main purpose is to provide background and identify knowledge gaps. In chapter three the research framework and hypotheses are developed. The chapter postulates links between the independent variables (checklists, team structure and team experience), mediator variables (number of criteria applied and team coordination difficulties) and the dependent variables (targeting performance and failure). The chapter also develops the different types of checklists that are included in the proposed framework.

Chapter four describes the research design, methodology and findings of the first stage of this research which is a marketing manager survey. The chapter reports on managers' assessment of the perceived usefulness of different targeting criteria from literature, and which list of criteria managers prefer (criteria proposed by Lilien and Rangaswamy (2004) is the most preferred). This list of criteria will be converted to a discipline specific checklist and tested in Chapter five. In Chapter five the discipline checklist from Chapter four is tested against a team coordination checklist and discipline-and-

coordination checklist in a laboratory experiment using business students. In Chapter five the research design, methodology and findings of the second stage of this research (experiment) are also discussed. Chapter six discusses the hypotheses and research findings of the study, and the contribution to checklist development in the context of marketing. The chapter identifies limitations of the research, outlines the thesis contribution and discusses the direction for future research.

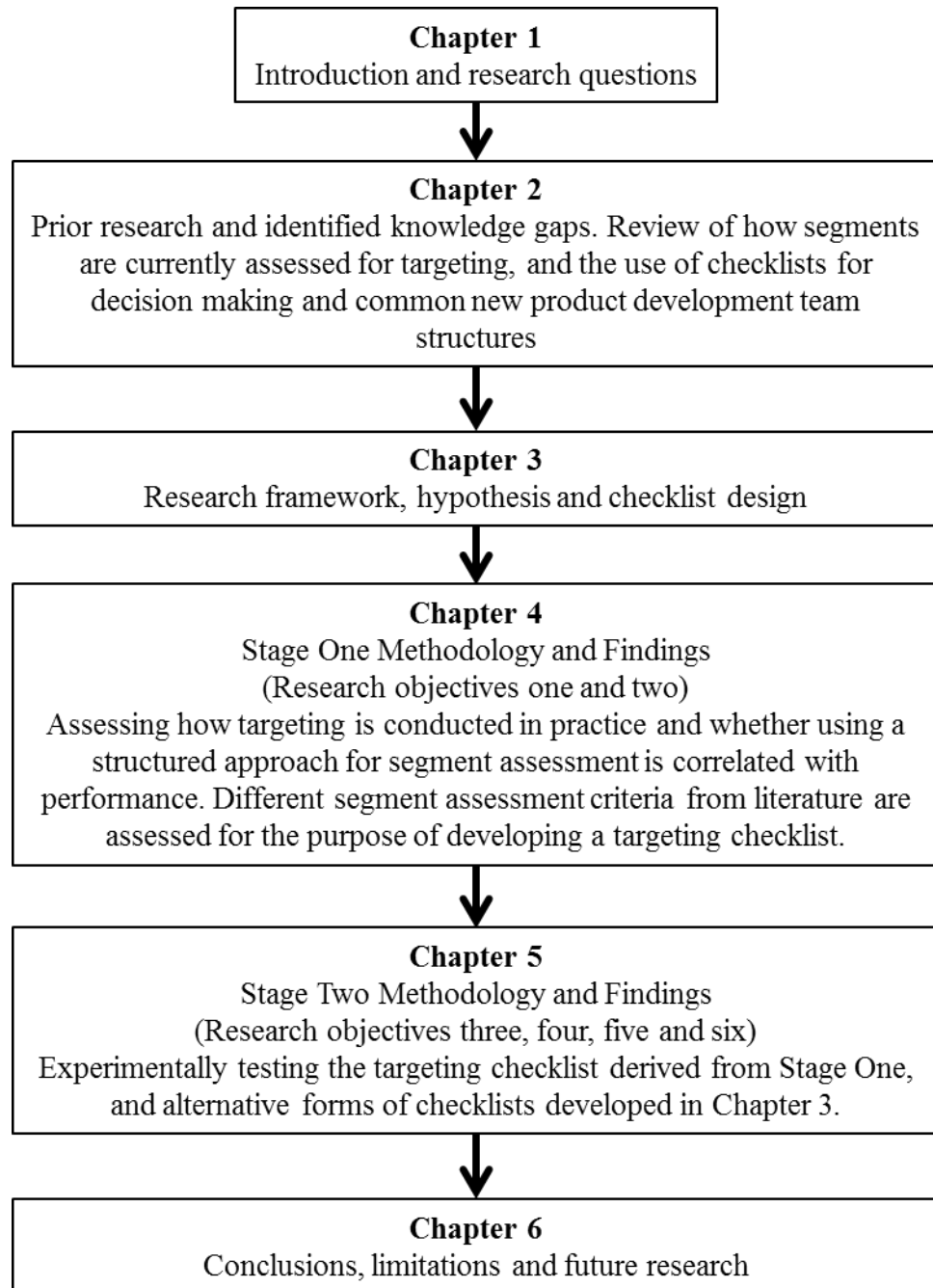


Figure 1.1 Thesis Structure

2 Literature review

2.1 Introduction

This chapter presents the background to market segmentation and segment assessment for targeting. Theoretical criteria for segment assessment are reviewed and a knowledge gap relating to the use of those criteria is identified. The use of checklists for avoiding human error in practice is discussed, focusing on the use of checklists in marketing. Key issues in teamwork and their potential effect on targeting decisions are also discussed. The literature review provides the necessary background for developing the theoretical framework to be discussed in the next chapter.

2.2 Market segmentation

The idea of classifying people into homogeneous groups has been around for hundreds of years, goes as far back as the fifth century BC (Dolnicar 2002). Hippocrates classified people based on physical attributes (Dolnicar 2002), later followed by Plato who used gold, silver and bronze to give individuals symbols of their social class (Tonks 2009). Although various forms of classification systems have been in place for centuries, the concept of segmentation as it is used in marketing literature today originates in economic theory of imperfect competition (Wedel & Kamakura 2000), in relation with how profit could be maximised in a heterogeneous market (Claycamp & Massy 1968).

Wendell Smith's definition of market segmentation is most commonly acknowledged as the original and most suitable, as his definition incorporates market preferences (consumer needs).

“Market segmentation ... consists of viewing a heterogeneous market (one characterized by divergent demand) as a number of smaller homogeneous markets in response to different product preferences among important market segments (Smith 1956, p. 6).”

Market segmentation has become an important part of marketing strategy (Foedermayr & Diamantopoulos 2008) because goods and services are hard to sell without recognising the needs of customers (Wedel & Kamakura 2000). Before the introduction of market segmentation, most major companies relied on mass marketing where customer needs were seen as homogenous and one type of each product was considered sufficient to satisfy consumer demand (Kotler & Armstrong 2005). Kotler and Armstrong (2005) gave a great example of the mass marketing approach by reminding us how the founder of the Ford Motor Company, Henry Ford, viewed consumer demand in the early 1900s. All of his customers were allowed to choose from any colour of a Ford automotive they preferred, as long as the colour was black (Kotler & Armstrong 2005). By suggesting that markets are in fact heterogeneous, and should be partitioned into homogenous segments according to the different characteristics of consumer wants, segmentation can be useful in informing organisation's strategy formulation for precise satisfaction of those wants (Smith 1956; Choffray & Lilien 1980). As the level of heterogeneity in the market rises, the need for segmentation increases (Johnson & Flodhammer 1980). This segmented approach can contribute to gaining competitive advantage in the market (Dolnicar 2004) as companies can more efficiently appeal to the most attractive market segments (Foedermayr & Diamantopoulos 2008).

2.2.1 The S-T-P process

Market segmentation is seen as the first stage in a strategic process of an organisation (Tonks 2009) and the first action an organisation should take when deciding where to compete (Porter 1985). According to Kotler (2003), a traditional way of explaining market segmentation is to describe it as a part of a longer strategic process, where the segmentation is used to identify market segments for targeting. This process has been most commonly recognised by practitioners as a three stage process of segmenting, targeting and positioning (S-T-P), a process proposed by Philip Kotler in 1984 for companies to follow to best satisfy customer needs (Dibb 1998; Kotler 2003). The three stages are summarised in Figure 2.1.

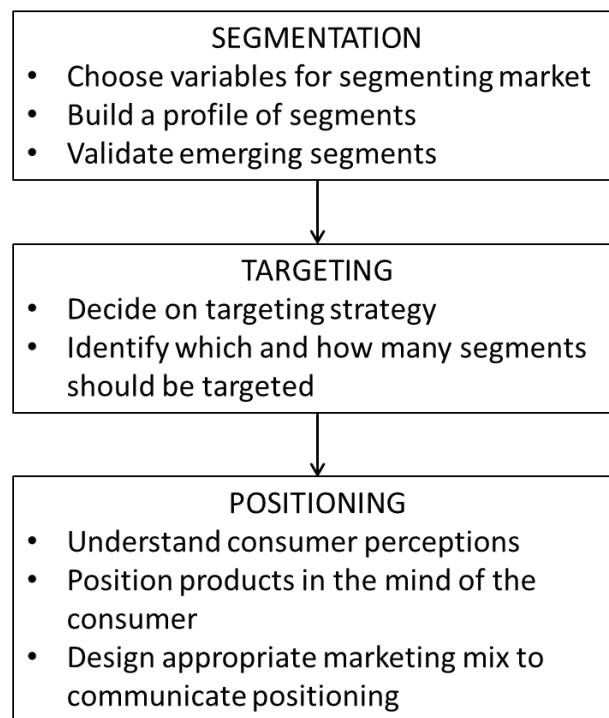


Figure 2.1 The S-T-P Process (source: Dibb 1998, p. 395)

Groups of potential customers that share similarities and respond differently to competitive strategies are identified in the first stage, and then compared to other groups identified in this process (Aaker 1998). Key variables that have been recommended for segmenting consumer markets are demographic, geographic, psychographic and behavioural variables (Kotler et al. 2013). After variables have been selected and data collected the information collected is assessed and used to decide which of the identified segments should be selected for targeting (Lilien & Rangaswamy 2004). The target market selected is therefore a group of consumers who share common needs and characteristics (Kotler et al. 2013). Dolnicar (2002) explained how each segmentation solution can produce any given number of segments, and that it is frequently up to management and researchers to jointly determine the optimal number of segments in a study. When selecting a target segment practitioners are therefore required to assess attractiveness of each identified segment for targeting, as well as taking into account the company's capability to compete within a particular segment (Jobber 1995). Decisions taken in the targeting step of the segmentation process have been claimed to be more crucial than decisions in the preceding step, as they are fundamental for the success of company strategy (Hlavacek & Reddy 1986; Croft 1994; Hooley, Saunders & Piercy 2004). During the third and final step new products and services are designed, or existing products modified, and then positioned to communicate appropriately with the target segment (Kotler 1984).

2.2.2 Improved framework for assessing segment attractiveness

In her paper, Dibb (1999) reviewed the literature on segment attractiveness assessment and drew attention to the issue of how segments should be assessed. On one hand, Kotler (1967; 1984) puts emphasis on assessing the characteristics of the segmentation

output using a list of assessment criteria in the segmentation step, one of three steps in his S-T-P framework. In Kotler's framework segment attractiveness was assessed separately in the targeting step, only after the characteristics of segments had been assessed. Other more practice focused authors have put less emphasis on the characteristics of segments when assessing and more emphasis on the business attractiveness of segments (Dibb 1999). According to Dibb (1999) there is confusion on when to apply assessment criteria in the three step framework. Hlavacek and Reddy (1986) were credited for developing one of the most detailed solutions of this issue (Simkin & Dibb 1998) and proposed a new three step process for improving the managerial usefulness of segmentation (Figure 2.2).

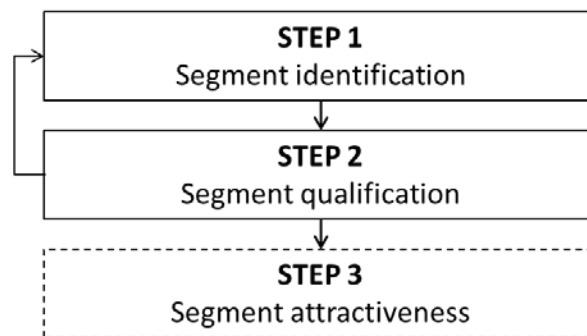


Figure 2.2 Hlavacek and Reddy's Three Step Process (source: Hlavacek & Reddy 1986, p. 13)

Hlavacek and Reddy (1986) argued that segments needed to first be identified (i.e. based on the problem customers need solved), followed by a qualification stage where segments are assessed according to a qualifying criteria, and only after qualifying each segment would be further assessed in respect to its relative attractiveness. The framework suggests a feedback loop between identification and qualification as

segments may need to go through a few iterations before a final segment is clearly defined (Hlavacek & Reddy 1986), rather than a sequential process as reflected in the earlier S-T-P framework. Clearly defined segments then go through further assessment (Hlavacek & Reddy 1986).

In his paper, Tonks (2009) pointed out that many criteria have been proposed for assessing segments and that authors interpret the proposed criteria differently. Which tasks of the assessment fall under the first phase of the S-T-P framework (segmentation) and which under the second phase (targeting) is often unclear (Tonks 2009). Hlavacek and Reddy's (1986) framework addressed this issue. Their framework fitted well within the S-T-P process and clarified what should happen in each of the stages (Dibb 1999). Figure 2.3 shows the alignment of the two frameworks.

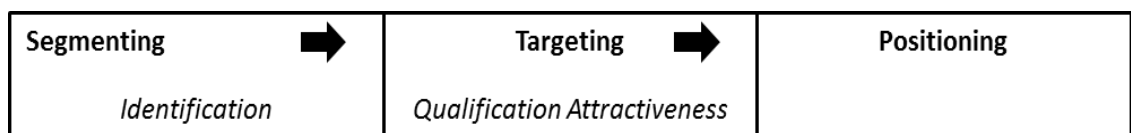


Figure 2.3 The Fit Between the S-T-P Framework and Hlavacek and Reddy's Three Step Framework for Assessment (source Dibb 1999, p. 110)

Depicted in Figure 2.3 are the qualification and attractiveness stages proposed by Hlavacek and Reddy and their alignment with Kotler's proposed targeting stage. The two stages are used to determine if segments are operational (qualify) and attractive for targeting, whereas the preceding stage of identification relates only to the design of the segments but not their attractiveness evaluation (Dibb 1999). Kotler's earlier framework suggested that the operational assessment took place in the segmentation step, and refers to "requirements for effective segmentation" (Kotler et al. 2013, p. 256). This is similar

to Hlavacek and Reddy's "qualification" step (Tonks 2009). The operational assessment which Kotler (2013, p. 257) calls "evaluating market segments" in the targeting step, Hlavacek and Reddy (1986) refer to as "attractiveness assessment". Tonks (2009) mentioned that the two steps of segmenting and targeting as proposed by Kotler may cause confusion for practitioners and that the line between the two is a very vague one. These two steps may be the source of the confusion and different interpretation of the different criteria in practice (Tonks 2009). As Figure 2.3 shows, Hlavacek and Reddy suggest that the two assessment steps Kotler proposes should be seen as one overall targeting process, and Kotler's "requirements for effective segmentation" and "evaluating market segments" can therefore be combined and seen as one comprehensive evaluative criteria for segment targeting (Tonks 2009).

Among the main tasks belonging to the first step of identifying segments are tasks such as deciding how many segments to target (Dolnicar 2002), which variables to use (Alpert 1972; Cunningham & Crissy 1972; Sunghoon, Fong & Desarbo 2012), and whether to use an a priori approach (Mazanec 2000) or post-hoc or data driven approach (Myers & Tauber 1977; Wedel & Kamakura 2000; Dolnicar 2002). Those have been well addressed in literature and are not within the scope of this thesis. The second step of targeting, or the overall evaluation of segments for targeting, is the key focus area of this investigation. According to Dibb (1999), it is unclear how best to perform this second stage of assessing and selecting segments, although a number of authors have suggested a range of methods. The various criteria and methods that have been proposed in literature for this purpose will be discussed in the following section.

2.3 Segment attractiveness

The selection of one or more segments to target is often considered to be the first major step in marketing strategy formulation and Weinstein (1994) claimed that this was a mission critical decision known to affect firm success. One or more segments identified in any given segmentation exercise may be considered attractive and worth pursuing (Hlavacek & Reddy 1986; Dibb & Simkin 2010; Kumar & Shah 2011; Lilien, Roberts & Shankar 2013), and a decision on which segments to target has to be made (Weinstein 1994). There needs to be a good match between the segments selected and company capabilities, and management may decide to target only one or few segments to best match its corporate objectives and to gain advantage of product specialisation (Blythe 2004). It is unlikely that all segments identified in the segmentation exercise will be equally attractive for targeting, thus, companies need to assess alternative segments to find the best match with company capabilities and resources (Weinstein 2004; Cravens & Piercy 2009). Before selecting segments for targeting, organisations must first assess and compare all identified segments (Adcock 2000).

Segment attractiveness varies between segments, and according to Hlavacek and Reddy (1986) any differences identified in the segmentation process may later become key success factors for organisations. How practitioners have defined what is considered “attractive” has varied from one practitioner to another and often reflects management preferences and characteristics of the organisation (Grant 2002). For the assessment of segment attractiveness many different lists of theoretical criteria have been proposed (Dibb 1999; Hooley, Saunders & Piercy 2004; Tonks 2009; Dibb & Simkin 2010).

In 1999, Dibb published a paper in which she reviewed segment assessment criteria proposed in the literature. For comparison, she categorised the different lists of criteria depending on where they were published. She identified three different sources; (a) academic journals (*researcher sources*), (b) textbooks (*marketing teacher sources*) mainly containing variations of a segment assessment criteria originally proposed by Kotler, and (c) books and journals for practitioners (*practitioner sources*) which were less comprehensive than the other two categories (Dibb 1999). The goal of discussing the three different sources was to illustrate how many different lists of criteria were available for assessment and the potential danger of managers being overwhelmed by the high number of lists available. Table 2.1 illustrates all different criteria lists identified in Dibb's review, categorised by type of source, and segmentation stage (following the three step framework proposed by Hlavacek and Reddy (1986)).

Table 2.1 Dimensions of the Classification Scheme (source: Dibb 1999, pp. 121-123)

Segment Qualification		
Researcher sources	<ul style="list-style-type: none"> • Criteria similar to Kotler measurability, accessibility, substantiality, actionability criteria 	Bonoma et al. 1983, Wind 1978
	<ul style="list-style-type: none"> • Market is not entirely homogeneous 	Beane and Ennis 1987, Green 1977, Green and Carmone 1977, Wind 1978
	<ul style="list-style-type: none"> • Segment stability 	Bass 1977, Blattberg and Sen 1974, Calantone and Sawyer 1978
	<ul style="list-style-type: none"> • Segment parsimony 	Choffray and Lilien 1978
	<ul style="list-style-type: none"> • Customer distinctiveness 	Hooley and Saunders 1993
	<ul style="list-style-type: none"> • Must cater for the existing market situation and be in keeping with organizational characteristics 	Garda 1981, Johnson and Flodhammer 1980
	<ul style="list-style-type: none"> • Must be managerially useful 	Blattberg et al. 1978, Saunders 1980
	<ul style="list-style-type: none"> • Potential for increased profit ROI and simplicity of assigning to segments 	Abratt 1993
	<ul style="list-style-type: none"> • Market is sufficiently large so that segments are profitable; heavy users should not make up so large a portion to make the market unprofitable; the brand should not be the dominant one in the market 	Young et al. 1978
	<ul style="list-style-type: none"> • In industrial markets, customers must have different profitability needs, supplier requirements, buying strategies and environmental characteristics 	Johnson and Flodhammer 1980

Marketing teacher sources	<ul style="list-style-type: none"> • Measurability, accessibility, substantiality, actionability 	Kotler 1984, McCarthy and Perreault 1990
	<ul style="list-style-type: none"> • Different sub-markets must have different elasticities 	Bieda and Kasserjian 1973
Marketing teacher sources	<ul style="list-style-type: none"> • Identifiable, large enough to generate required sales volume and profits and so that marketing communications can be directed appropriately 	Procter 1996
	<ul style="list-style-type: none"> • Sizable, reachable and relevant 	Adcock et al. 1995
Marketing teacher sources	<ul style="list-style-type: none"> • As Kotler plus segment stability 	Dibb et al. 1997, Littler 1992, Zikmund and D'Amico 1996
	<ul style="list-style-type: none"> • As Kotler plus effective 	Doyle 1995
Marketing teacher sources	<ul style="list-style-type: none"> • Measurability, relevance to major customer group, operational relevance for market strategy 	Webster 1991
	<ul style="list-style-type: none"> • As Webster plus segment compatibility with current marketing and business strengths 	Gross et al. 1993, Hutt and Speh 1989
Practitioner sources	<ul style="list-style-type: none"> • Homogeneity 	Bertrand 1989
	<ul style="list-style-type: none"> • Segment size and sales potential 	Chaston 1990
Practitioner sources	<ul style="list-style-type: none"> • Suitability of segment output for programme development 	Greenberg and McDonald 1989
	<ul style="list-style-type: none"> • As Kotler plus company capability to change its structure and decision making systems to focus on new segments 	McDonald and Dunbar 1995
Practitioner sources	<ul style="list-style-type: none"> • Segment dimensions should correlate with market behaviour, provide direction for media buying and lead to appropriate product manipulation and message strategies 	Greenberg and McDonald 1989
Segment Attractiveness		
Researcher sources	<ul style="list-style-type: none"> • Sales volume, profits, market share 	Wind and Cardoza 1974
	<ul style="list-style-type: none"> • As Wind and Cardoza, plus market growth and likely customer satisfaction 	Zhande 1996
Researcher sources	<ul style="list-style-type: none"> • Ability to reach buyers, competitive position, market size, expected market growth and market fit, organizational objectives and resources 	Abratt 1993, de Kluyver and Whitlark 1986
	<ul style="list-style-type: none"> • Product quality diversity; customer service and marketing approaches; 	Chandler and Hanks 1994

	product/service offer diversity; competition; stage of development and level of untapped market demand	
	<ul style="list-style-type: none"> • Growth rate and relative market share as in BCG analysis 	Wensley 1981, Wind and Mahajan 1980
	<ul style="list-style-type: none"> • McKinsey Group composite type models (e.g. DPM, GE) Business competitive position: size, growth, relative share, marketing skills, customer loyalty, patents, margins. Industry attractiveness: size, growth, profitability, competitive intensity, price levels, technological sophistication, government regulations 	Morrison and Wensley 1991, Robinson et al. 1978
	<ul style="list-style-type: none"> • The threat of new entrants, the bargaining power of customers, the bargaining power of suppliers, the threat of substitutes, jockeying for position among existing players 	Porter 1979
	<ul style="list-style-type: none"> • Market attractiveness factors: market factors, economic considerations, competition, environmental factors. Business strengths: current market position, economic and technological position, capability profile 	Hooley and Saunders 1993
Marketing teacher sources	<ul style="list-style-type: none"> • Competitive conditions, corporate objectives, available resources and alternative marketing opportunities for other product lines 	Zikmund and D'Amico 1996
	<ul style="list-style-type: none"> • Market size, patterns of demand, growth patterns, life cycle stage, competitive factors, other environmental factors 	Jeannet and Hennessey 1992
	<ul style="list-style-type: none"> • As Jeannet and Hennessey, plus profit potential, fit with company strengths, objectives, resources and distribution channels 	Berkowitz et al. 1992, Doyle 1995, Keegan 1995, Procter 1996
	<ul style="list-style-type: none"> • As Jeannet and Hennessey, with segment relevance/suitability 	Bradley 1995
	<ul style="list-style-type: none"> • Similar to Jeannet and Hennessey, but including the number of segments which can be effectively managed 	Wind 1995
	<ul style="list-style-type: none"> • Division into segment attractiveness (e.g. market, environment and competitive factors) and company's capability to compete (e.g. marketing assets, managerial capabilities and commitment, technological edge and cost advantages) 	Jobber 1995, Kotler et al. 1996
	<ul style="list-style-type: none"> • In business-to-business markets emphasis also on production capacity, physical distribution and service capabilities, sales constraints 	Haas 1992

Practitioner sources	• Sales potential, cost of reaching the segment, growth, competition and fit with company resources	Wood and Ehrlich 1991
	• Entry barriers	Corey 1975
	• Similar to Wood and Ehrlich, plus nature of customer needs and entry barriers	Dibb 1995, McDonald 1989
	• Competitive rivalry, threat of substitutes, supplier power, buyer power, threat of new entrants	Porter 1980, 1985
	• Market size, volume growth, level of competition, technology, compatibility with buying behaviour, marketing environmental trends, sales: contribution potential of segments, internal resource capability	Dibb and Simkin 1995
	• Careful competitor analysis	Barone 1984, Cooper 1993, Ries and Trout 1986, Trout with Rivkin 1996

Of the criteria proposed for segment assessment, Kotler's criteria are the most frequently cited in the literature (Dibb 1999). They are *measurability*, *accessibility*, *substantiality* and *actionability* of segments (Kotler 1984). According to Kotler (1967) these criteria are conditions that should be met for market segments to be useful. Which segment to target should be based on these criteria and also an evaluation of which of the segments are worth operating in (Kotler 1967).

“Perhaps the most striking feature of the review of segment qualifying is the continued domination in all areas of the literature of the version attributed to Kotler. Indeed, it seems that the high profile which the Kotler criteria have received may have inhibited more creative and comprehensive consideration of the segment qualifying notion.” (Dibb 1999, p. 120)

Other criteria proposed in literature are similar to those proposed originally by Kotler (see for example Wind & Cardozo 1974; Garda 1981; Bonoma & Shapiro 1983; Zikmund & D'Amico 1996; Wedel & Kamakura 2000; Morrison 2002), often adding one criterion or more to the original three such as; segment stability (Calantone & Sawyer 1978; Thomas 1980; Dolnicar & Lazarevski 2009), company capability (Doyle 1994), segment uniqueness (Baker 1996), market environment characteristics (Johnson & Flodhammer 1980) and costs and benefits of reaching the segments (Wind & Cardozo 1974). A concern is that there are very few examples of the effectiveness of the different criteria ever being tested (Dibb & Simkin 2010) and more research is needed to identify which of the criteria are being used in practice (Dibb & Simkin 2009).

Dibb's comprehensive review did not indicate which criteria were either preferred, or most frequently used. To develop an up to date list of criteria, a literature review was

conducted. This was done by screening marketing textbooks used during the academic year 2013 in top international business schools (based on the Financial Times Global MBA Ranking of 2012, see <http://rankings.ft.com/businessschoolrankings/global-mba-rankings-2012>), books focusing on segmentation and targeting were added to the review and textbooks cited in top marketing journals (*Journal of Marketing*, *Journal of Marketing Research*, *Marketing Science*, *Management Science* and *Journal of Consumer Research*) and published between 2008 and 2013. The journal search was conducted using the keywords “targeting”, “segmentation”, and “positioning”. All identified criteria are provided in Table 2.2 where each criterion appears in the same order as in the original source.

Table 2.2 Segment Evaluation Criteria Proposed in Marketing Journals and Textbooks

Authors	Criteria
Sharp 2013	Measurable, Targetable (reach, response consistently), Size, Profitability
Perreault & McCarthy 2002	Substantial, Operational, Heterogeneous between, Homogeneous within
Winer & Dhar 2011	Parsimony, Sufficient segment size, Segment's growth rate, Potential competitive position
Solomon et al. 2011	Differentiable, Measurable, Substantial, Accessible, Actionable
Day 1984	Measurable, Substantial, Accessible, Sufficiently different, Life-cycle stage if durable
Wedel & Kamakura 2000	Identifiability, Substantiality, Accessibility, Responsiveness, Stability, Actionability
Myers 1996	Sufficient size, Distinguishable, Accessible, Compatible with the company's resources, objectives, expertise, competition position, market requirements
Dibb & Simkin 2008	Segment homogeneity, Size and profit potential, Segment stability, Segment accessibility, Compatibility, Actionability
Jain 2012	Measurable, Accessible, Substantial, Develop maximum differential in competitive strategy, Preserve competitive advantage, Valid even though imitated
Kotler & Keller 2012	Measurable, Substantial, Accessible, Differentiable, Actionable, Segment rivalry (competition), Potential entrants, Substitutes, Power of buyers, Power of suppliers, Fit with company objectives, competence, and resources
West, Ford & Ibrahim 2010	Size, Income and purchasing power, Characteristics of the segment, Reachability, Able to serve segment effectively, Large enough to be profitable, Truly distinct from other segments, Capacity to develop marketing programs to efficiently identify, attract, and serve the segment
Croft 1994	Segment size, Segment growth, Level of competition, Segment profitability, Likely technological changes, Sensitivity to price, Barriers to entry, Buyer or supplier bargaining power, Socio-political considerations, Cyclicity and seasonality, Life-cycle position

Pride et al. 2012	Sales estimates (potential sales for product item, product line, geographical area in the short, medium or long term), Competitive assessment, Cost estimates, Long-term profit opportunities, Financial resources, Managerial skills, Employee expertise, Facilities to compete effectively, Fit with corporate objectives, Legal issues, Conflicts with stakeholders, Technological advances
Sternthal & Tybout 2010	Influence of company's current position in the market on growth opportunities, Competitor's ability and motivation to retaliate, Competence and resources, Segments that will prefer the value that can be created by the firm over current market offerings, Consumer motivation and goals indicating gaps in marketplace offerings when launching a new company
Lilien & Rangaswamy 2004	Size (market potential, current market penetration), Growth (past growth forecasts of technology change), Competition (barriers to entry, barriers to exit, position of competitors), Segment saturation (gaps in marketing), Protectability (patentability of products, barriers to entry), Environmental risk (economic, political, and technological change), Fit (coherence with company's strengths and image), Relationships with other segments (synergy, cost interactions, image transfers, cannibalization), Profitability (entry costs, margin levels, return on investment)
McDonald & Dunbar 2004	Segment factors (size, growth rate per year, sensitivity to price, service features and external factors, cyclicity, seasonality, bargaining power of upstream suppliers), Competition (types of competition, degree of concentration, changes in type and mix, entries and exits, changes in share, substitution by new technology, degrees and type of integration), Financial and economic factors (contribution margins, capacity utilization, leveraging factors, such as experience and economies of scale, barriers to entry, or exit), Technological factors (maturity and volatility, complexity, differentiation, patents and copyrights, manufacturing processes), Socio-political factors (social attitudes and trends, laws and government agency regulations, influence with pressure groups and government representatives, human factors, such as unionization and community acceptance)

As can be seen from Table 2.2, most of the lists of criteria contain three of the criteria originally proposed by Kotler (1967), *measurability*, *accessibility* and *substantiality*. In some cases the wording of individual criteria is different from the original, but it reflects the same fundamental idea (e.g. *substantiality* = *size*). Table 2.2 also demonstrates how much the identified lists of criteria vary in length, ranging from four items proposed by

Sharp (2013) and up to a list of 28 items proposed by McDonald and Dunbar (2004). This supports the claim that managers may be overwhelmed and illustrates that even expert authors disagree on how to best assess segments for targeting. Of the 16 different lists in Table 2.2, 50 percent were published in the last five years. This indicates that authors do not agree on which criteria should be used.

2.3.1 Segment selection issues in practice

“Though a wide variety of segmentation schemes has been proposed since Smith (1956) first argued for the advantages of market segmentation, managers have not been offered guidelines for how to choose segments, analyse serving costs, or monitor resulting customer groups in a way that allows simplicity of choice and clarity of results (Bonoma & Shapiro 1984, p. 257).”

Bonoma and Shapiro (1984) reminded us how difficult it can be to implement segmentation solutions in practice as consumer demands are constantly changing. They argued that targeting all market segment identified is typically not viable because it would significantly raise the total marketing cost. This would include both higher cost of developing new products and developing specific marketing programs for each segment. Bonoma and Shapiro (1984) explained how marketers had to select between two different approaches to segment selection; one based on consumer needs, and another based on consumer accessibility. The first one had stronger theoretical foundation, but was harder to implement. The latter was relatively easy to implement, but not necessarily based on consumer needs. They suggested that the optimal was a combination of the two, which in most cases would be very hard to identify and therefore, managers needed more support to target efficiently. This view was later

supported by Dibb (1999) who wrote that the three step S-T-P process commonly used could actually make implementing segmentation solutions even more challenging in practice. Issues could arise in each of the three steps making the identification and implementation of appropriate segment solutions even harder (Dibb 1999).

Similarly, Clancy and Roberts (1993) noted that the aim of market segmentation was to provide support for managerial decisions and the aim was to find an optimal target market. In their discussion on *a priori segmentation* and *ex post facto segmentation* as key approaches to segmentation, they did point out that neither of the two approaches could guarantee that the optimal target would be selected. Clancy and Roberts (1993, p. 7) state:

“There is still no widely accepted and validated paradigm for evaluating modes of segmentation and selecting an appropriate target group for a product or service.”

Clancy and Roberts (1993) pointed out that – due to a lack of support – most practitioners select target groups merely on face validity, often referring to product usage rate as a key variable. A recent study indicates that a number of managers still make decisions based on face validity: close to half (49 percent) of 1004 U.S. marketers who participated in the survey claimed they had to trust their “gut feeling” when making strategic marketing decisions (Adobe Systems Incorporated 2014).

A plethora of useful decision support models have been developed to support marketing decisions and many have had obvious business impact (Lilien 2011). Lilien (2011)

noted that despite the available support many key decisions (e.g. pricing) are actually based on instincts rather than model recommended courses of action. Quinn's (2009) qualitative investigation supports Lilien's (2011) claim, finding that segmentation solutions were not being implemented in practice. Quinn (2009) interviewed 12 key informants in the U.K. apparel retail sector who were knowledgeable on how segmentation was conducted and implemented in their organisations. One of the key implications from his findings was that the marketing literature mainly provided conceptual and theoretical discussion, not practical advice for managers how to implement segmentation solutions. In many cases managers trusted their intuition, rather than relying on segmentation solutions as they seemed harder to implement. Bonoma and Shapiro (1984, p. 258) came to a similar conclusion over three decades earlier when they claimed that "management often faces segmentation tension between the theoretically desirable and the managerially possible", and found this to be a potential cause of many segmentation issues in practice. On a similar note, Dibb (1998) concluded that practical guidance was needed for better implementation of segmentation solutions, and to ensure that practitioners actually understand the segmentation process.

This view was supported in a study by Dolnicar and Lazarevski (2009). The authors identified a major issue in the use of segmentation in practice, when they revealed that managers who participated in their study claimed segmentation was like a "black box" procedure, a procedure which they knew very little about (Dolnicar & Lazarevski 2009). This is consistent with Dibb's (1998) findings where managers were found to have problems implementing segmentation in practice as a result of limited understanding. Lilien (2011) states that managers will not use what they do not understand. Dibb (1998) suggests that easy to understand guidelines should be developed for

practitioners, and that would have the potential to improve the usefulness of market research in practice (Dibb 1998).

2.3.2 Segment selection support

After surveying specifically selected marketing industry experts, reviewing marketing journals and texts from a 25 year period, and surveying American Marketing Association members, Myers, Greyser and Massy (1979) conclude that much of the marketing innovation in academia during the 25 year period never reached practitioners. In their review, they look at various models developed for decision support and find that one of the main reasons why practitioners were not using the support provided was because it seemed as marketing academics were communicating in a totally foreign language. This, coupled with the different incentives in academia and practice, seemed to prevent many of the models ever being used in practice (Myers, Greyser & Massy 1979).

In a seminal paper, John Little (1970) claimed that the reason why the decision support developed in academia was not being used in practice was because most of the decision support models developed were simply too technical for users to understand. This is consistent with Myers, Greyser and Massy's (1979) finding, and the more recent claim by Lilien (2011) who stated that there are still vast amounts of systems developed in academia that receive minimal use (Lilien 2011). Many of the recent decision models are said to consist of extremely complex mathematical formulations (Fisher, Raman & McClelland 2000), which could explain why practitioners are still having problems with selecting segments for targeting. Little (1970) states that models need to fulfil certain requirements to be accepted and used in practice, and in more recent work, Hauser,

Tellis and Griffin (2006) conclude that those requirements are generally thought to have stood the test of time. According to Little (1970), useful models need to be simple, robust, easy to control, adaptive, complete on important issues and allow for a certain degree of managerial judgement. A decision support system complying with those criteria is more likely to be useful in practice, according to Little (1970). *Simple*, in Little's (1970) paper, means easy to understand, a criterion which Eisenstein and Lodish (2002) later supported when they argued that if managers do not understand the model, they are less likely to adopt the model.

To identify which types of decision support were proposed for the purpose of assessing segment attractiveness, a literature review was conducted. Articles published in top marketing journals and published between 1999 and 2014 were reviewed (*Journal of Marketing*, *Journal of Marketing Research*, *Marketing Science*, *Management Science* and *Journal of Consumer Research*). This period was chosen because the last explicit call for segment assessment support identified in literature was published in 1999 (Dibb 1999). The keywords "segment selection", "segment qualification", "segment assessment" and "segment attractiveness" were all used in this search. Only two articles were identified: one by Wierenga, Van Bruggen and Staelin and one by Montoya-Weiss and Calantone. Both were published in the same Special Issue of *Marketing Science* in 1999.

Wierenga, Van Bruggen and Staelin (1999) provided an introduction to the Special Issue and presented a framework for evaluating various marketing management support systems. The only mentioning of segment selection in their article was an introduction to Montoya-Weiss and Calantone's study published in the same issue.

In their study, Montoya-Weiss and Calantone (1999, p. 373) employed what they referred to as “*a multistage research methodology incorporating conjoint analysis, cluster analysis, a product design optimization simulation and a multiobjective integer programming (MOIP) model*”. Following the guidelines for making useful decision support tools proposed by John Little in the 1970s, the authors incorporated managerial judgement in their mathematical model and stated that the procedure was simple, robust, and easy to communicate with and could be transported to other contexts. Their system of methodologies was a four stage procedure, consisting of; (1) problem structuring, (2) segment formation, (3) segment evaluation and selection and (4) segmentation strategy description (Montoya-Weiss & Calantone 1999, p. 376). The model presented was comprehensive, used inputs from different functional units within the organisation and multiple decision criteria. The authors did mention *measurability, substantiality, accessibility, responsiveness, and actionability* of segments as an example of criteria which could be incorporated into their model (Montoya-Weiss & Calantone 1999, p. 374), but did not clarify which criteria was used in the final version of the model. Although the study highlighted some of the important issues that could arise in complex cross-functional projects and proposed detailed solutions to key issues, the study did not present any practical guidelines on which assessment criteria to use.

Although all the different decision criteria proposed for segment assessment (see Tables 2.1 and 2.2) should provide marketers with practical guidelines, Lee, Morrison and O’Leary (2006) pointed out that many of the criteria were hard to use, as quantifiable and objective measures had in most cases not been operationalised. In the same vein, Dibb and Simkin (2010) noted that very few examples of the practical use of the criteria had been published in literature. Dibb’s (1999) call for more decision support seems to

be as relevant today as it was 15 years ago, as a simple and easy to understand process for segment assessment could not be identified in literature.

2.4 Checklists

“A checklist is a formal list used to identify, schedule, compare, or verify a group of elements or actions. A checklist is used as a visual or oral aid that enables the user to overcome the limitations of short-term human memory. Although a checklist may be published in a manual, it is designed for independent use so that the user does not have to reference a manual. Checklists are used to ensure that a particular series of specified actions or procedures are accomplished in correct sequence (Federal Aviation Administration n.d.).”

Checklists are memory devices used to assist with solving certain tasks (Martz 2010). They can range from simple checklists used for basic tasks such as grocery shopping (Bosk et al. 2009), to more complex tasks such as safety control in nuclear power plants (Hwan Yun et al. 2000). Checklists have been claimed to originate in aviation (Gordon, Mendenhall & O'Connor 2012), although Stufflebeam (2001) argues that the first checklist was developed well before humans started flying airplanes offering the Ten Commandments as an early example of a checklist. Stufflebeam (2001) defines the checklist as a tool for evaluating human behaviour against moral codes.

Checklists as we know them today are more commonly associated with aviation, where they have been used for nearly 80 years (Gordon, Mendenhall & O'Connor 2012; Schamel 2012). In his historical review of the aviation checklist, Schamel (2012) described how Boeing's Model 299 airplane crashed shortly after a successful take-off during the airplane's first test flight. Human error was identified as the main cause of

the accident and findings from the investigation following the event concluded that the plane was simply too complex for one man to handle (Schamel 2012). A pilot checklist was the proposed solution to avoid human error occurring and after implementing aviation checklists the Model 299 was flown millions of miles without serious incidents (Schamel 2012; Boeing 2014).

Experts in aviation take checklist development seriously (Gawande 2009) and they have learned a lot about checklist development in the past 70 years (Weiser et al. 2010). Other industries where human error can have serious consequences, like nuclear power plant operations, have followed this example and developed checklists to avoid incidents. Hwan Yun et al. (2000) describe how expert reviews on safety systems at nuclear power plants were systematically collected and structured to develop an evaluation checklist for the safety evaluation of operator aiding systems in nuclear power plants. After the checklists were implemented the efficiency and effectiveness of the evaluation process was significantly enhanced (Hwan Yun et al. 2000).

Gawande (2009) explains how checklists were being used in the construction industry to avoid human error. Checklists are used to describe what needed to be done at each stage in the construction, and also to coordinate the activities of different contractors so everyone involved is aware of when things needed to be completed. Looking at the complete lifecycle of buildings, Shen et al. (2007) developed a checklist for assessing the sustainability of construction products, from the moment the first investment decision was made and until the building was demolished at the end of its lifecycle. The checklist aimed at improving the coordination of the different stakeholders involved in the construction with the goal of attaining better project sustainability performance.

Similar to aviation, nuclear power plant operation and construction, human error can have serious consequences in healthcare, even be the cause of death in the most serious of cases. Checklists have been used successfully to avoid failures in healthcare for the past ten years (Pronovost et al. 2003; Berenholtz et al. 2004; Berenholtz et al. 2004; Erdek & Pronovost 2004; Pronovost et al. 2006; Makary et al. 2007). Pronovost et al. (2003) introduced a checklist containing daily goals for staff members which aimed at improving communication in an intensive care unit. After implementing the checklist team communication was improved, leading to shorter average length of stay for patients in the intensive care unit. Similarly, Makary et al. (2007) developed a coordination checklist which aimed at improving communication in a cross-functional team during surgery. Checklist use was found to improve team communication significantly post-intervention, leading to significantly lower risk of making mistakes during surgery.

Berenholtz et al. (2004) implemented a checklist which not only coordinated team member activities but also empowered nurses to intervene and stop procedures if they observed that superiors were making errors. This reduced the number of catheter-related bloodstream infections significantly within the intensive care units where the study was conducted (Berenholtz et al. 2004). In another major healthcare investigation, Erdek and Pronovost (2004) conducted a pre- and post-intervention study using checklists, which aimed at improving pain assessment and treatment in hospital patients. Pain assessment checklists for hospital staff were attached to hospital beds which significantly improved both assessments and treatments of patients (Erdek & Pronovost 2004).

Drawing on the lessons learned in aviation (Gawande 2009; Weiser et al. 2010), Haynes et al. (2009) published what was considered a ground breaking study for the use of

checklists in surgery. Haynes and his team (2009) developed and implemented a surgery checklist across eight different countries with very different hospital cultures. A relationship between the use of checklists and post-surgery complications was established, where the use of checklists significantly reduced both post-surgery complications and death rates (Haynes et al. 2009). The checklist used in this study later became the World Health Organization's surgery safety checklist, now used in operating rooms worldwide (Weiser et al. 2010).

2.4.1 Checklist development

Very little has been written in academic literature on how to develop checklists (Weiser et al. 2010) and most of the checklists developed in healthcare have relied on experiences from aviation (Gawande 2009; Weiser et al. 2010). In his taxonomy of checklists, Fox (2010) discusses Gawande's book *The Checklist Manifesto*, and its contribution to the awareness of checklists and checklist use. Fox (2010) claims that missing from this book was a checklist for making checklists and that a taxonomy for checklists was also needed. In his article Fox (2010) defined five different types of checklists; *task list* for step by step processes, *troubleshooting list* used when things are going wrong, *coordination list* for coordinating teams of experts, *discipline list* which are similar to task lists except more judgement is required for each step, and *to-do list* which is a personal list of things to do. In the same year Gawande et al. (2010) published a checklist which aimed at improving checklist design, a checklist for checklists. The checklist for checklist is shown in Figure 2.4.

A CHECKLIST FOR CHECKLISTS

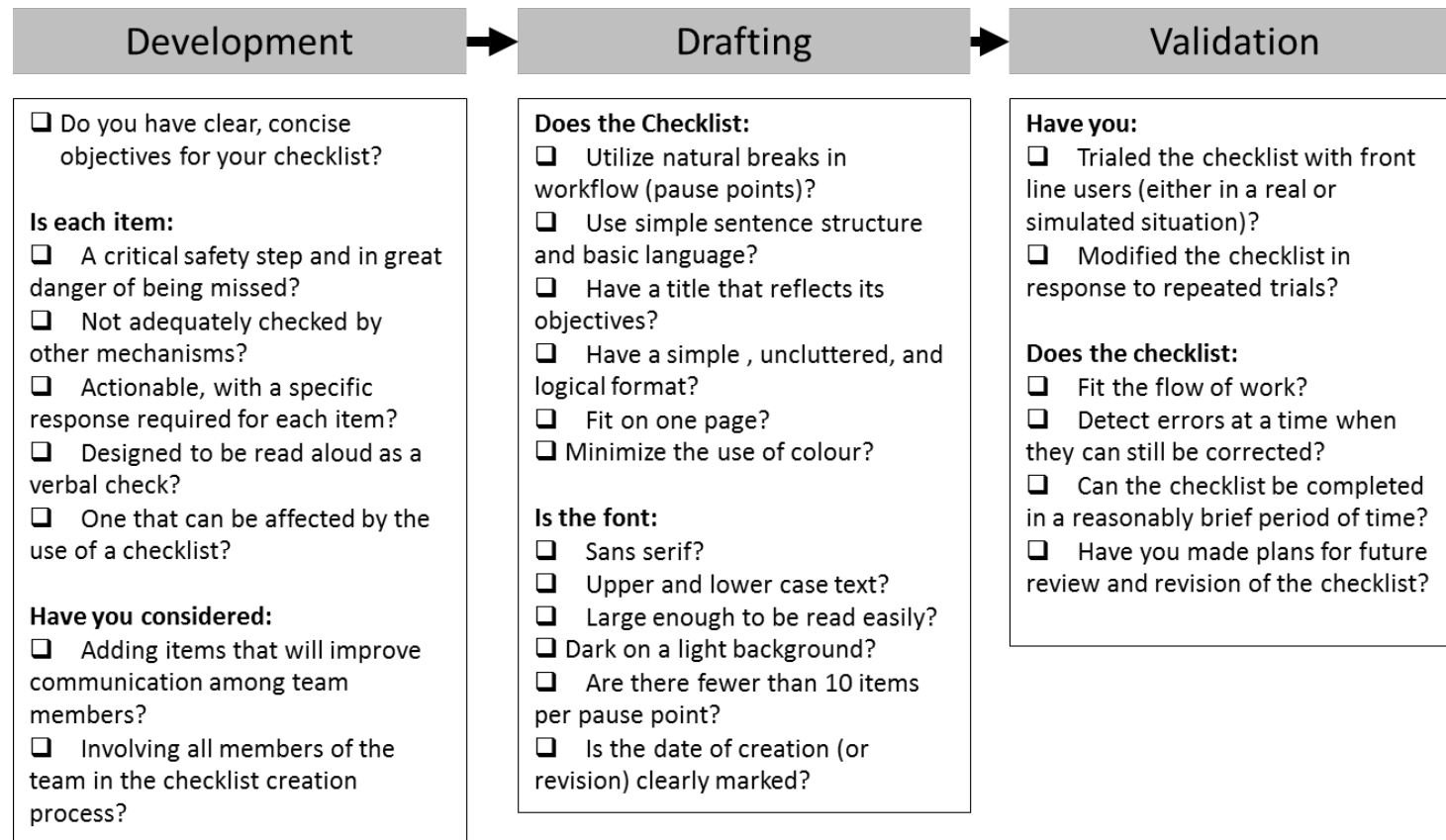


Figure 2.4 Checklist for Developing Checklists (source: Gawande et al. 2010)

2.4.2 Marketing checklists

A review of checklist articles in marketing was conducted to identify which types of checklists were most commonly used in marketing, and if they complied with any of the recommendations of the Checklist for Checklist (Figure 2.4). Articles published in the top journals in marketing (*Journal of Marketing*, *Journal of Marketing Research*, *Marketing Science*, *Management Science* and *Journal of Consumer Research*) between 1940 and 2014 were reviewed using the search term “checklist”. Only three articles were identified where checklist was the topic of investigation and one where checklist use was suggested but not discussed.

The earliest evidence of checklists in marketing literature was published over 70 years ago in the *Journal of Marketing* (Cunningham 1942). Cunningham (1942) claimed that checklists were of distinct value in marketing, highlighting their usefulness for assessing product ideas, but only if the checklists were well designed and properly used. Cunningham did not discuss the exact nature of the checklists he referred to, nor did he give any design guidelines. Nearly two decades later, Christian (1959) published a checklist for new product development in the same journal. In his article, Christian (1959) proposed a checklist containing 152 criteria in the form of questions marketers should ask themselves when planning to launch new products. The author mentioned that the proposed checklist may not have been relevant to all organisations. The author did not justify the reasoning for the proposed criteria (Christian 1959). Over 20 years later, Sands and Posch Jr. (1982) published a checklist containing 22 items, also in the *Journal of Marketing*. Their checklist was a tool to aid managers and their lawyers in avoiding litigation when expanding their organisation’s distribution network (Sands &

Posch Jr 1982). Similar to Christian's (1959) checklist, this was put forward as a suggestion, not an empirically validated tool for decision support.

The most recent mentioning of checklist use identified in literature was published in *Marketing Science* a decade ago. In his editorial, Shugan (2004) discussed how many reviewers use checklists when reviewing academic manuscripts in marketing. Each manuscript submitted for publication needs to fulfil basic requirements, or criteria. Shugan (2004) reminded us of how important it is to update checklists as criteria may become redundant as times change, and how in omitting some of the checklist criteria may be needed in specific cases. The impact of using checklist in marketing is unclear in literature as a limited number of published articles were identified. There is no evidence of any guidelines on how to best develop checklist in marketing, nor does the literature indicate which type of checklist is best suited for solving marketing problems.

2.5 Teamwork

“Teams are social groups embedded in organizations, performing tasks that contribute to achieving the organization's goals. Their work affects others within or outside the organization. Team members are dependent on each other in the performance of their work to a significant extent, and they are recognized as a group by themselves and by others. They have to work interdependently and supportively to achieve the team's goals (West & Markiewicz 2004, p.11).”

In her review of the history of teamwork, Rippin (2002) showed how teamwork is as old as the social organization and how families can be seen as one of the earliest forms of a team structure. Both have interdependent members, meet regularly and a mutual well-being is their purpose (Rippin 2002). Early examples of teamwork in organisations

can be tracked as far back as to the Roman soldiers who fought side by side, depended on each other and worked interdependently to achieve the common goal of defeating the enemy (Rippin 2002). More recently, teamwork has become popular in business organisations. Findings from a survey conducted in the early 1990s show that only seven percent of the 475 U.S. organisations that participated in the survey were using work teams, whereas half of them reported that they would be using work teams in the coming years (Schilder 1992). In a more extensive longitudinal study published only a few years after Schilder's study, 68 percent of Fortune 1000 organisations reported that they were using self-managed work teams (Lawler et al. 1995). It was evident that the use of teams had become more popular than ever before in organisations around the turn of the century (Cohen & Bailey 1997). According to Parks and Cowling (2004) most of the important decisions were then being made by teams. In their book on building teams, West and Markiewicz (2004) stressed the importance of teamwork for organizations and how there was evidence to suggest that good teamwork led to improved innovation, productivity and performance.

The positive impact teamwork has on innovation and performance has been well documented (Hoegl & Gemünden 2001). In their study of 575 participants from the German software industry, Hoegl and Gemünden (2001) found that good quality teamwork significantly affected performance, and was also shown to have positive impact on individual work satisfaction and learning. Similarly, in a study of 141 product development teams, Sethi, Smith and Park (2001) found that superordinate identity in teams was positively correlated with product innovativeness, indicating that better teamwork would positively affect innovativeness. Moses and Stahelski (1999) investigated problem solving in the aluminium industry, where the use of teams was

compared with not using teams. The findings showed strong evidence in favour of teamwork, where productivity was significantly improved in the team setting (Moses & Stahelski 1999).

The ability to work in a team has been greatly valued in marketing for a long time, both in education and practice (McCorkle et al. 1999). Atuahene-Gima (1996, p. 95) defined teamwork in the context of marketing and new product development as “the degree of interaction and coordination among functions during the development of new products”. By definition, the interaction refers to an interdepartmental collaboration, or cross-functional teamwork structure, which Olson et al. (1995) reported as being increasingly popular team structure in marketing. The use of teams has become the strategy of choice when organisations face complex decisions (Salas, Cooke & Rosen 2008) and De Luca and Atuahene-Gima (2007) recently stated that there is now a general agreement in the marketing literature that cross-functional collaboration is fundamental for the success of new products.

2.5.1 Cross-functional teamwork in marketing

Follett (1949), an organisational theorist, identified the need for cross-functional teamwork well before cross-functional relationships were formed in the context of marketing. In her work, Follett (1949) also recognised the potential discrepancies between the different parties involved, and pointed out that some team members would potentially attempt to dominate cross-functional relationships. This needed to be dealt with and managers would need to communicate to coordinate activities on different tasks, to facilitate for a solution which was beneficial for all involved.

Nearly half a century ago, Kelley (1966) had proposed that organisations should adopt cross-functional team structures as a way to improve success. His argument was based on the complexity different functions of organisations faced as a result of increased computer use and the potential this new technology had for decision making if used correctly. This seems to be as relevant today as it was almost 60 years ago. In a recent study, 76 percent of the participating 1004 U.S. marketers indicated that they needed to focus more on computer data in the future to be successful at what they were doing (Adobe Systems Incorporated 2014). Findings indicated that the environment they operated in was complex and the majority of respondents reported that their roles were continuously changing (Adobe Systems Incorporated 2014). This increased complexity may well be one of the reasons why the use of cross-functional teams is more common, as cross-functional teams have been found to be well suited for solving complex business problems (Northcraft 1995; Kettley & Hirsh 2000).

Until the 1950s, large organisations were characterised by pyramid hierarchical structures with multiple layers, but no distinct marketing departments (Webster 1992). Marketing departments were first implemented in the 1950s and 1960s, often as extensions of sales departments (Webster 1992). One of the earliest evidence of cross-functional structure in marketing can be found in a study conducted by Hise (1965). Hise (1965, p. 9) implied that cross-functional structure was needed in organisations for successful operation, where the marketing department should play “an expanded role”. In his study of 273 U.S. organisations, Hise (1965) found that over 74 percent of the organisations favoured a structure where the marketing was partly responsible for new product development, favouring either collaboration with R&D or manufacturing and engineering departments. Despite this early evidence it appears that cross-functional

collaboration only started to gain popularity three decades later. Olson, Walker and Ruekert stated in 1995 that cross-functional structure was starting to show promising results for new product development and marketing.

According to Jassawalla and Sashittal (2000), cross-functional teams, where the marketing function is involved, often bring together members of R&D, production and other functional groups. Eisenhardt, Kahawajy and Bourgeois (1997) argued that this structure improved the problem solving abilities of teams, as those coming from marketing often see opportunities and business issues from a different perspective than those coming from other disciplines. This combination of different perspectives and skills for solving particular problems has been said to be the rationale for using the cross-functional structure in business (Slotegraaf & Atuahene-Gima 2011) and can contribute to competitive advantage in many ways (Parker 2003).

Marketing's contribution to cross-functional teamwork has been claimed to be fundamental for successfully developing new products (De Luca & Atuahene-Gima 2007). Souder (1988) investigated the cross-functional partnership between the marketing function and the R&D function on product development projects over the period of ten years. He collected data from 289 new product development projects with intensive field research at 56 different organisations. Most of the teams in the study showed signs of what Souder (1988, pp. 9-11) defined as "disharmony", consisting of seven contributing factors; lack of interaction, lack of communication, too good friends, lack of appreciation, distrust, equal partner harmony and dominant partner harmony. Acknowledging that this made disharmony "a complex facet of human behaviour" (Souder 1988, p. 13) results show a strong statistical relationship between the level of disharmony and the degree of project success: close cross-functional partnership was

the key for the success of many of the new products developed. This indicates that the disharmony needs to be dealt with so projects will be successful (Souder 1988). He recommended using small teams (five members or less) to improve performance, as communication and coordination was better in smaller team. Ensuring that both functions were involved from the start of project, with joint participation in all decisions also contributes to improved performance (Souder 1988). Similarly, Slotegraaf and Atuahene-Gima (2011) found that forming cross-functional teams in the early stages of a project and keeping them unchanged throughout the duration of the project proved to be more effective than changing the team structure after starting projects. The reason identified was because working together over a long period of time fostered the exchange of important information (better communication). Openly sharing important information in teams is extremely important as it contributes to better performance (Mesmer-Magnus & Dechurch 2009). Mesmer-Magnus and DeChurch (2009) carried out a meta-analysis on 72 studies to see how information sharing in teams impacted performance, among other attributes, and found that information sharing positively predicted both team performance and team cohesion.

Based on Souder's (1988) implications of the importance of communication among team members, Griffin and Hauser (1992) made the first attempt to directly test different techniques for improving communication in cross-functional teams. In their study, two new product development teams worked on similar projects while receiving different interventions. One received "Quality Function Deployment", a product-development process containing the "House of Quality" decision matrix, and the other did not receive an intervention. Findings suggested that communication improved in teams using the decision support, while the control groups sought more advice from

other people in the organisation that were not members of the cross-functional team. The use of decision support does also have the potential to negatively affect performance in cases where the information needed to successfully develop products is not available within the teams, as the users are less likely to seek external advice (Griffin and Hauser 1992).

Other studies have identified similar issues in cross-functional work, indicating that problems with the sourcing and sharing of information through team communication can negatively affect performance. Starting with Follett (1949) who raised the issue by making note of the power balance in teams, and how some may attempt to dominate the team relationship. Similarly, Soulder (1988) mentioned in his longitudinal study that perceived theft of credit for successful tasks was found to be an issue, as it led to communication issues with team members withholding important information from each other.

With enhanced web communication and increased geographic distribution of team members, team coordination has become more important than before (Hauser, Tellis & Griffin 2006). In their article *Research on Innovation: A Review and Agenda for Marketing Science*, Hauser, Tellis and Griffin (2006) identify product development team coordination as one of the key issues that need to be dealt with in future research. Bunderson and Sutcliffe (2002) showed us how important coordination is for team performance. In their study investigating functional diversity in teams, they claimed coordination difficulties can negatively influence performance in expert teams, as they “may be unable to exploit their diverse expertise because of cross-functional communication and coordination problems” (Bunderson & Sutcliffe 2002, p. 875).

2.6 Chapter overview and knowledge gaps

From this review it can be seen that a considerable amount of work has been put in developing lists of criteria for segment assessment, ranging from lists with three criteria proposed almost half a century ago (e.g. Kotler 1967), to lists containing over ten criteria proposed more recently (e.g. Pride et al. 2012). Despite the plethora of criteria already published, it is unclear from the literature which set of criteria is theoretically most important or most preferred by practitioners. Furthermore, although the assessment criteria have been referred to as “simple checklists of criteria” (Dibb 1999, p. 107), it is unclear from the literature how to operationalise the proposed criteria in the form of checklists, and which checklist format should be adopted. The literature review reveals that checklists have not been adopted in marketing for assessing or selecting segments to target. Furthermore, using cross-functional teams for solving complex problems in marketing has become more popular than before. Despite the success of cross-functional collaboration in improving team performance, cross-functional teams can experience communication issues.

3 Model development and hypotheses

3.1 Introduction

The previous chapter reviewed the literature on segmentation, focusing on the process of segment assessment and selection in a team environment. The purpose of this chapter is to outline the research framework and the respective hypotheses. The framework aims at developing existing knowledge and addressing the research questions presented in Chapter 1. In the second part of this chapter, the different targeting checklists used in this study will be discussed, one that tells users what to investigate (referred to as discipline checklist), one who coordinates team activities and communication (referred to as coordination checklist), and a combination of the two which aims at advising users on what to investigate and coordinate activities while doing so (referred to as discipline-and-coordination checklist).

3.2 The conceptual framework and the relationships within the framework

The section develops and describes a research framework consisting of different checklists for selecting target segments and their interaction with common marketing team structures. This is done by building on (1) the market segmentation literature where the use of assessment criteria have been recommended for important decisions such as target segment selection (Kotler 1984; Dibb 1999; Lilien & Rangaswamy 2004; McDonald & Dunbar 2004), (2) the teamwork literature where cross-functional team structure had gained popularity when solving complex problems (Northcraft 1995; Kettley & Hirsh 2000) as it can improve team performance (Olson, Walker & Ruekert 1995), and (3) the checklist literature where the use of checklists has been found to improve cross-functional teamwork when solving complex tasks (Pronovost et al. 2003;

Berenholtz et al. 2004; Berenholtz et al. 2004; Pronovost et al. 2006; Makary et al. 2007; Gawande 2009). The research framework is depicted in Figure 3.1 (see page 37) and the hypotheses are summarised in Table 3.3 at the end of this chapter.

Section 2.3.1 argued that although segmentation and targeting were key strategic decisions a company makes (Porter 1985; Foedermayr & Diamantopoulos 2008; Tonks 2009), the extant literature has yet to provide the best method for implementing segment assessment criteria in practice (Dibb 1999). In Section 2.3.1, it is also argued that managerial support for these types of decisions is needed, as practitioners find the segmentation procedure overly complex (Dolnicar & Lazarevski 2009). Section 2.4 demonstrated how teams in disciplines other than marketing have used checklists to support and improve team procedures, and as a consequence reduced failure rates when solving complex tasks. The proposed research framework illustrates these relationships (Figure 3.1). As the literature does not provide guidance on which of the many assessment criteria to use, this current research includes two research stages. One stage that identifies which list of criteria is preferred by practitioners (Chapter 4), and a second stage which tests the proposed framework using the preferred criteria (Chapter 5). The framework hypothesises that the use of checklists will improve targeting performance.

3.2.1 Independent and dependent variables

The independent variables of the model are checklist type, team structure and team experience. Checklist type refers to the three different types of checklists, as discussed in the previous chapter. *Discipline* checklists tell the user what to investigate, *coordination* checklists tell the user how to proceed with completing specific tasks and

coordinating activities, and *discipline-and-coordination* checklists aim at coordinating activities when following a what-to-do procedure. Team structure refers to the two commonly used structures in business, conventional teams and cross-functional teams, as defined in the previous chapter. Team experience refers to the experience gained by repeatedly working together as a team, without changing team member roles and responsibilities between tasks. The targeting performance output, here defined as targeting failure and company stock price, is used to measure the different interactions of the independent variables in the framework.

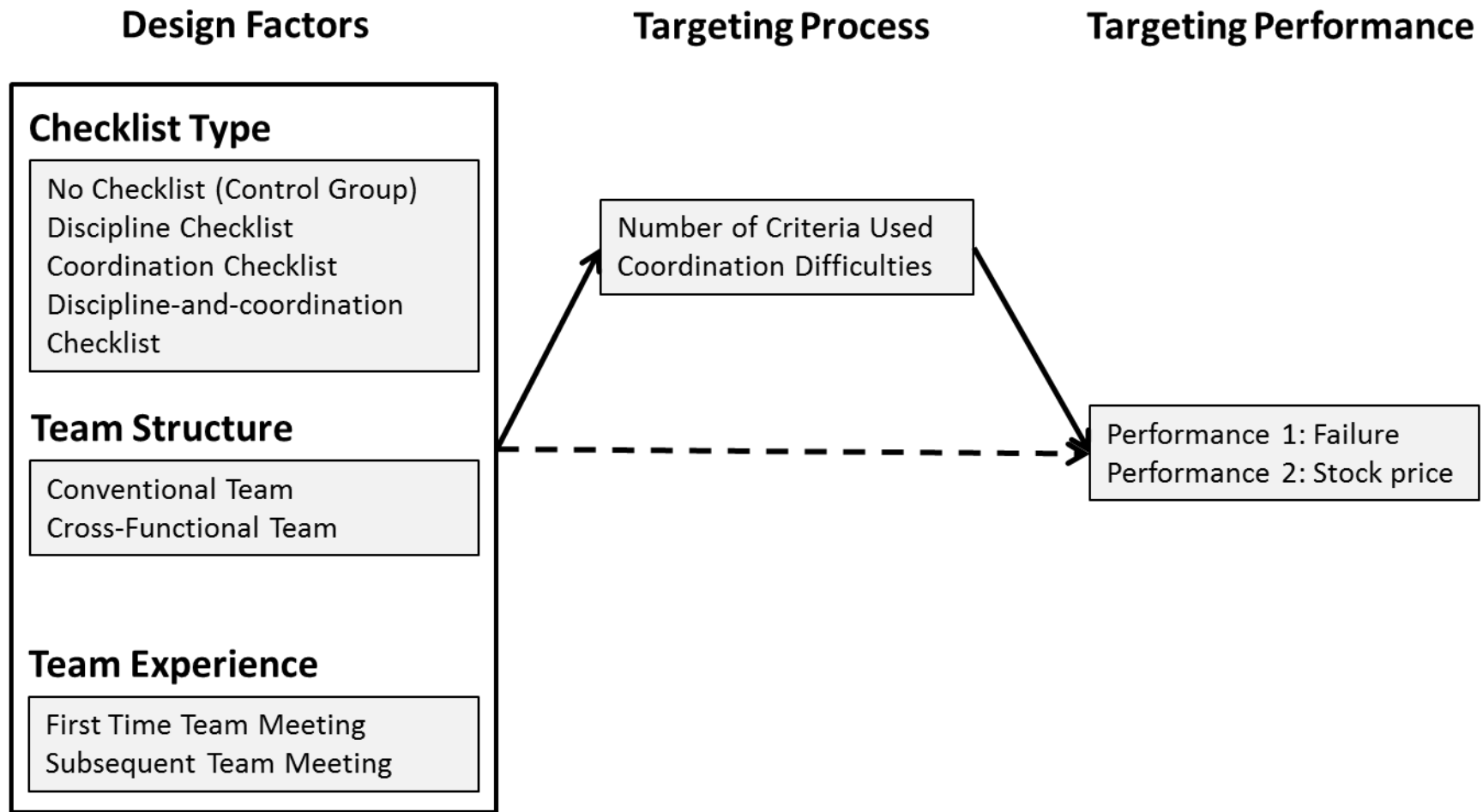


Figure 3.1 The Effect of Checklist Use and Team Structure on Performance

3.2.2 Influence of checklists on criteria use

Sibbald, de Bruin and van Merrienboer (2013) pointed out that when checklists are used in practice, checklist users are forced to examine all information relevant to the checklist criteria thus avoiding to make errors caused by cognitive limits. A large number of assessment criteria have already been proposed in literature, each containing a number of items that need to be assessed (Dibb 1999). This means marketers have a number of options to choose from. Despite the number of different criteria, Dibb and Simkin (2009) argue that marketers need decision guidance for segmentation and targeting to be effective. Dolnicar and Lazarevski (2009) support this view; managers in their study found segmentation to be a complex and hard to understand procedure.

When projects are perceived to be complex, managers are more likely to take shortcuts and even avoid making important decisions due to cognitive constraints (Janis 1989; Field & Janis 1990). Checklists aim at providing decision support when solving complex tasks by forcing users to examine only what is relevant and not omitting important tasks (Sibbald, de Bruin & van Merrienboer 2013).

Therefore, the adoption of checklist is one of the ways in which segment assessment decisions can be improved. The assessment criteria proposed in literature could be omitted as a whole from the assessment process, or selected items from a list of criteria could be omitted, as a result of adopting decision shortcuts. A checklist containing assessment criteria should help users to avoid making this error and ensure that all criteria are looked at. The use of checklists should therefore evoke a higher number of assessment criteria items considered. Higher number of criteria items assessed will lead

to improved performance. The number of criteria used will act as a mediator between checklist use and targeting performance. Accordingly, it is hypothesised that:

H1 Checklist use will increase the number of criteria considered.

3.2.3 Influence of checklists on team coordination

One of the mediators of the model is *coordination difficulties*. As in Fussell et al. (1998), coordination stands for how team members coordinate their actions in teams by communicating team goals, providing each other with task related information and making team decisions. The order of proposed team actions for solving a problem can be crucial for the action's impact if following a structured process such as checklists, as some actions have more impact early in the process (McGrath 1991). For example, knowing who does what in a team is helpful if clarified early in the project (Gawande 2009). In fact, the sequencing of actions, number of actions in a process and the responsibility for performing the actions can all affect the project outcome (Janis & Mann 1977; Berg & Pitts 1979). Additionally, sharing task related information with team members will facilitate for improved team performance (Hoch 2014).

Lenox, Hahn and Lewis (1999) found that checklists had the potential to improve team cohesion and information exchange. Their work on checklists was complemented by Lingard et al. (2008) who successfully implemented checklists for coordinating activities of surgeons, nurses and anaesthesiologists before a surgery. The use of checklist was found to promote a proactive and collaborative cross-functional team communication, and significantly decrease the number of communication failures.

The interactive dimension in the framework includes checklists that contain coordination tasks, thus informing people how to go about solving the task. This is done

by prescribing the sequence of performing tasks, clarifying responsibilities of team members and ensuring that all team members understand what the team deliverables are. Discipline checklists implicitly require team members to interact as the criteria used may call for team discussion. On the other hand, coordination checklists have an explicit interactive dimension where team members are forced to discuss and coordinate team activities with other team members.

Given the success of checklists for coordinating teams in healthcare discussed in Section 2.4, it is expected that discipline and coordination checklists will lead to fewer coordination difficulties. The improved team coordination is expected to lead to higher targeting performance and a lower likelihood of failure. Here, coordination difficulty will act as a mediator between checklist use and performance (failure and stock price). Thus, it is hypothesised that:

H2 Checklist use will reduce coordination difficulties.

3.2.4 Influence of team structure on teamwork procedure and processing

Olson, Walker and Ruekert (1995) conducted a study where cross-functional team structure was found to improve performance on challenging new product development tasks, while a more centralised structure worked better for working on familiar projects. The more complex the task was, the greater became the need for cross-functional structure (Olson, Walker & Ruekert 1995). Cross-functional teams bring together different perspectives (Chang & Yeh 2014) and are significantly more inclined to obtain project-related information, engage in brainstorming and review the progress of their work (Pinto & Pinto 1990). Furthermore, an empirical examination of survey data from German start-up companies shows that managers that operate under a decentralised

cross-functional structure with individual decision authority, compared to a more functional structure where one member has the authority, are more concerned about how comprehensive and well prepared their decisions are (Talaular & Grundei 2005). Collectively, these studies outline the critical role team structure plays on teamwork procedure and processing.

The conceptual framework suggests that team structure indirectly influences targeting performance. This happens as team structure is expected to affect the number of criteria investigated, which in turn affects the targeting process. Drawing on the different sources discussed, cross-functional teams are expected to explore more project related information and ensure that their decisions are comprehensive, leading to the following hypotheses:

H3 Cross-functional teams inspect more criteria than conventional teams.

3.2.5 Influence of team experience on checklist use

The independent variable *team experience* refers to the experience of working together as a team. This is similar to how Reagans, Argote and Brookes's (2005) explain team experience, where experience of working together on tasks leads to more willingness to share information, improved knowledge of who knows what in a team and also more knowledge of who can do what in a team. The willingness to share tacit norms and practices has been found to increase as members work more frequently together (Mascitelli 2000) and the knowledge of who knows what in a team is important when team member roles are not predefined and when tasks need to be divided among different team members (Liang, Moreland & Argote 1995; Faraj & Sproull 2000).

There is evidence to suggest that experience of working with other team members on tasks has stronger positive effect on team performance, compared with individual experience (e.g. number of years worked in a firm) (Huckman, Staats & Upton 2009). The experience of working together enables team members to develop special ways of communicating and anticipate each other's actions (Weber & Camerer 2003). This can lead to improved team coordination (Weber & Camerer 2003). Reagans, Argote, and Brooks (2005) find that this type of experience contributes to faster project completion time and improved productivity, compared with less experienced teams. In a study comparing how novice and experienced venture capitalist evaluate start-up teams before investment decisions are made, Franke et al. (2008) found that the two groups attach different importance to the assessment criteria used in the study.

Given the positive impact team experience has on willingness to share information, project productivity and knowing who can do what in a team, the study aims to test the influence team experience has on checklist criteria use. Openly sharing information and faster processing of the shared information should facilitate for better use of checklist criteria employed. It is thus proposed:

H4 Experienced teams inspect more criteria than newly formed teams.

3.2.6 Influence of checklist use on team performance

Bosk et al. (2009) state that if checklists are not properly implemented and used, their impact will be limited. Well-designed checklists that are followed in every detail can, on the other hand, be extremely effective and help teams avoid failure (Haynes et al. 2009). During the checklist design and testing phases, criteria that are considered unnecessary or unlikely to improve performance are omitted (Weiser et al. 2010). As a

result, checklists should only include mission critical tasks that need to be explored during the project to avoid failure (Gawande 2009).

Nakata and Im (2010) demonstrated how teams that achieve greater coordination and cooperation are more efficient and effective at information processing and decision making than teams that do not achieve the same level of coordination and cooperation. The importance of good team coordination is well established and critical for the success of team projects (Mat & Jantan 2009). This is especially relevant to situations where cross-functional team structure has been implemented, as cooperation between cross-functional teams positively affects performance (Song, Montoya-Weiss & Schmidt 1997).

Hence, these two dimensions of the targeting process are expected to affect performance:

H5 A higher number of criteria considered improves performance.

H6 Fewer coordination difficulties improve performance.

And additionally, building on H1 to H6 and the interactive framework it is hypothesised that:

H7 Checklist use, cross-functional team structure, and greater team experience improve team performance, mediated by the number of criteria applied and coordination difficulties.

3.3 Checklist development

As discussed in Chapter 2, Fox (2010) introduced his taxonomy of checklists where five different types of checklists were defined; *task list*, *troubleshooting list*, *to-do list*,

coordination list and discipline list. This is used as a foundation for developing the targeting checklists used in this current study.

According to Fox (2010), *task lists* are best suited for solving technical problems in a step-by-step manner where each of the steps does not require a lot of judgement. This contradicts one of John Little's (Little 1970) main principles for developing useful marketing decision support tools as they need to allow for managerial judgement to be useful and adopted by managers. Therefore a task list was not developed for this study. *Troubleshooting lists* are recommended for technical problems and meant to be implemented after things go wrong (Fox 2010). A troubleshooting list was not developed for this study as the aim is to develop a checklist that helps users to avoid failure before it occurs. According to Fox, a *To-do list* defines as an entirely personal list which by definition makes it unsuitable for this study.

Coordination lists are extremely useful for complicated tasks where experts join forces in cross-functional teams. According to Fox (2010) the main aim of coordination lists is to force team members to consult each other regularly throughout the project. This is well suited for the cross-functional context under investigation in this study. Similarly, *discipline lists* are well suited for marketing decisions. Fox (2010) states that discipline lists are not necessarily standardised and the main purpose is to avoid making errors later in the project being undertaken. The list is put together before commencing the project and contains procedures you want to make sure that are not forgotten. Segment assessment criteria in literature could easily be transformed into discipline lists. Both a coordination list and discipline list were developed for this thesis and are described in the following section. Gawande (2009) discusses checklists that address both aims simultaneously, list activities that should not be forgotten and coordinate different team

members. In Fox's taxonomy this is not discussed. Therefore, a combination of coordination list and discipline list was also designed and tested in this current study (hereafter "discipline-and-coordination list").

3.3.1 Checklist types

"Bad checklists are vague and imprecise. They are too long; they are hard to use; they are impractical. They are made by desk jockeys with no awareness of the situations in which they are to be deployed. They treat the people using the tools as dumb and try to spell out every single step. They turn people's brains off rather than turn them on. Good checklists, on the other hand are precise. They are efficient, to the point, and easy to use even in the most difficult situations. They do not try to spell out everything - a checklist cannot fly a plane. Instead, they provide reminders of only the most critical and important steps - the ones that even the highly skilled professional using them could miss. Good checklists are, above all, practical (Gawande 2009, p. 120)."

The coordination checklist is widely used in construction and surgery to coordinate in cross-functional situations where team members are often working together for the first time (Gawande 2009). A coordination list ensures that team members introduce themselves at the start of the project, clearly state the team member's capabilities and prescribe the sequence of tasks to improve team coordination. Discipline lists on the other hand list what needs to be done. Typical segment assessment lists, such as those shown in Table 2.2 can easily be converted into discipline lists. They list steps that should not be forgotten during a project to avoid omitting tasks that are critical for the success of the project. The third type of checklist, the discipline-and-coordination list

combines the two aforementioned checklist types aiming at both considering all important criteria and coordinating team communication.

3.4 Chapter summary

In this chapter, a research framework was developed to explain the main effects of following an integrated process for assessing market segments. The framework highlighted three different inputs: team structure, team experience and checklist type, and their effect on the output (performance). Two mediating variables, number of checklist criteria used and team coordination difficulties, were also discussed and how the different inputs in the framework may affect those processes. Research objectives one and two (see Table 3.1) will be addressed in the manager survey in Chapter 4, the four other objectives will be addressed in Chapter 5. Table 3.2 summarises the hypotheses developed in this chapter.

Table 3.1 Summary of Research Objectives

Research objectives:	
1	To understand how targeting decisions are currently made in practice.
2	To investigate whether following a structured approach for assessing and selecting target segments is associated with better performance in practice.
3	To understand the impact of checklist use for marketing decisions on company performance.
4	To understand how checklists for targeting decisions should be designed.
5	To understand if there are negative effects of checklist use on checklist user communication.
6	To understand how checklist use interacts with different team structures.

Table 3.2 Summary of the Proposed Hypotheses

Research hypotheses		Research objective addressed
H1	Checklist use will increase the number of criteria considered.	3
H2	Checklist use will reduce coordination difficulties.	3
H3	Cross-functional teams inspect more criteria than conventional teams.	6
H4	Experienced teams inspect more criteria than newly formed teams.	6
H5	A higher number of criteria considered improve performance.	3
H6	Fewer coordination difficulties improve performance.	5
H7	Checklist use, cross-functional team structure, and greater team experience improve team performance, mediated by the number of criteria applied and coordination difficulties.	-

4 Stage One - Methodology and Findings

4.1 Introduction

In Chapter 2, evidence of checklist use in various disciplines was reviewed. The review revealed that checklists are not a common topic in marketing journals, where studies addressing the topic are few and far between. In the same chapter, the question was raised whether checklists could have the potential to improve key strategic decisions in marketing, similar to what they have done in healthcare in recent years. In Chapter 3 different types of checklists were developed and discussed, one of which was a discipline specific checklist for selecting target segments. By definition, discipline checklists are used for step by step procedures where each step is important and requires a certain level of managerial judgement (see Chapter 2 for a review). In the literature review, a number of different lists of targeting criteria were discussed (see Section 2.3 & Table 2.2 “Segment evaluation criteria proposed in marketing journals and textbooks”), while no single list that is preferred over others could be identified. Therefore, it is unclear which of the criteria proposed in the literature (proposed lists) should be converted to a discipline list for examining further in this current study. There is also evidence which suggests that decision aids such as checklists may not be adopted in practice, depending on the perceived complexity and other key design factors. In the previous chapter, it was concluded that targeting lists from literature can easily be converted to discipline checklists; all that is remaining is to get managers to indicate which of the lists in literature they prefer. To address the identified gaps, a survey was conducted with marketing managers. Accordingly, the purpose of this chapter is to describe the survey procedure and report findings.

4.2 Purpose

The purpose of Stage One was to investigate which of the existing list of targeting criteria is preferred by managers. Marketing managers were approached as they are the target population for this type of a checklist. This was required to inform the design of the laboratory experiment in Stage Two (Chapter 5), where the preferred list was converted to a discipline checklist.

There is evidence to suggest that cross-functional teams are more frequently being used in marketing, and one of the purposes of this stage was to determine if this team composition was also common when making targeting decisions. Easy to use and easy to understand criteria are more likely to be accepted in industry (Little 1970). To inform the design of the discipline checklist, testing which aspects of criteria lists were responsible for high levels of preference by managers was also investigated.

4.3 Method

4.3.1 Research design

As one of the key objectives in this phase was to assess a number of different segment assessment criteria from literature, a quantitative approach was most appropriate. This allowed for easy comparison of both complete checklists, and individual checklist items.

4.3.2 Sample

One of the research gaps identified in Chapter 2 explicitly states that segment selection support for managers is needed, and one of the main objectives of this study is to test whether targeting checklists have the potential to serve this purpose effectively. As

marketing practitioners were the target audience, their input was needed in the survey. The literature suggests that if checklists are based on managerial preference and something managers understand, then managers are more likely to adopt checklists.

One of the main purposes of this study was to assess different lists of targeting criteria from marketing textbooks. The textbooks were selected after reviewing which marketing textbooks were being used in the top 20 MBA programs globally. Out of the list of 20 programs, a total of 11 programs were taught in U.S. business schools. It was therefore decided to recruit U.S. based marketing managers. The aim was to get a sample of at least 200 managers. This number was within the budget allocated for the study, and would ensure that around 25 managers would assess each of the lists of criteria chosen from literature. It was important to get as close to 30 managers assessing each list as possible, as getting close to 30 has been recommended when measuring group differences (Wilson Van Voorhis & Morgan 2007). Three screening questions ensured that all participants were: (a) working for a for profit company, (b) with over 100 staff members and (c) that participants were responsible for either all or some marketing-related decisions (see full survey in Appendix A). The online survey was programmed so respondents were not able to complete the survey without providing valid answers to all questions. Only complete surveys were included in the final data set, and participants who had only answered a part of the survey were removed. Further data cleaning and screening procedures were done by the author after receiving the complete file. This was done by looking at the open-ended questions “can you please briefly outline the process of assessing segment attractiveness in your company” and “can you please briefly describe the criteria employed to assess segment attractiveness in your company?” and assessing the quality of responses. Those answers classified as

“extremely poor” or “irrelevant” were removed from the data set, but only after being double checked by one of the doctoral supervisors for approval.

10,346 US business panel members were contacted via email and invited to participate. Of those 10,346 members 2,200 (22%) responded. Of those 275 did not complete the survey and 1,676 had to be screened out because they were not involved in targeting decisions. In addition to the screening questions, open-ended responses were analysed for quality. Following the analysis of open-ended questions, a further 79 participants were removed; their responses were of low quality suggesting they were not knowledgeable on the topic. Two respondents were removed from the data because they were suspiciously quick completing the survey (speeders). This resulted in 168 valid completions, at the end of the data collection period (two weeks). After a second wave of data collection, the final number of 223 participants was reached.

Response bias was assessed by testing for differences between early and late responders, where 19 percent of the sample (43 respondents) responded on the first day the survey was open, and 27 percent of the sample (61 respondents) responded on the last two days. No significant differences were found between the two groups with respect to gender, involvement in targeting decisions, position in the company or segmentation, innovation, and business performance in their firms.

Measures were taken to keep key informant bias to a minimum. Participants were asked to indicate on a slider scale how knowledgeable they were on target segment selection decisions, ranging from “not at all knowledgeable” to “extremely knowledgeable”. The scale was coded from 0 to 100 and the average self-assessment was 76, indicating a relatively knowledgeable sample (self-claimed knowledge).

The questionnaire was pre-tested before being sent to managers, using 55 third year university students as surrogates. During the pre-test students were encouraged to notify the researcher if anything was unclear. The main purpose of the pre-test was to assess how long it would take to complete the questionnaire, and to identify if there were any issues. The questionnaire and the participant information sheet were both approved by the University of Wollongong Human Research Ethics Committee (Approval number HE13/088).

4.3.3 Data collection

The U.S. marketing managers were surveyed using a permission-based internet panel. A permission based online panel was used because it represents an affordable way to gain access to managers and it easier to implement than more traditional mail surveys (Arora et al. 2004). Participants were invited to take part in a 30 minute long survey, introduced as a part of a project which aimed at developing new and improved tools to help marketing managers select the best target segments. The questionnaire was available until the target number of 200 qualifying respondents had been reached.

As the screening process described in Section 4.3.2 resulted in 168 valid completions, additional invitations had to be sent out by the panel company. Consequently, another 55 valid responses were achieved which resulted in a final sample of 223 marketing managers in this study.

4.3.4 Measures

The first questions of the survey served the purpose of excluding those respondents that did not belong to the research population (Brace 2008) and were presented with a general introduction to the survey and its purpose (Appendix A).

The main questionnaire was divided into four parts by themes: (1) how segments are selected in their company, (2) perceived usefulness of the proposed segment assessment criteria, (3) views on checklist use for marketing decisions and (4) general information about the company they worked for and their role within the company. These sections were ordered by topics as recommended by Dillman (2000), starting with the topic respondents were expecting given the information they obtained when invited to participate. The order of questions in each section was structured from general to more specific questions to avoid specific topics biasing more general questions (Brace 2008).

The questionnaire used both visual analogue scales and multi-item scales (all measures used can be found in Appendix A). Visual analogue scales were used because they are easy to use and lead to metric data (Reips & Funke 2008). The visual analogue scale appeared as a horizontal line with verbalized endpoints. Respondents placed a slider at the position best reflecting their response. Underlying the horizontal line – and invisible to respondents – was a 100 point scale.

Another scale chosen to measure managerial attitudes was the Likert rating scale (Likert 1932), which was originally developed to measure attitudes. Likert scales are good for measuring different levels of an attribute (Churchill 1979), as respondents are required to think along two dimensions, content (disagree or agree with the content) and intensity (how strongly they feel) (Joseph et al. 2011). To reduce the overall time it would take to complete the survey, binary answer scales were also used where appropriate. Dolnicar and Grün (2007) demonstrated how respondents find this answer formats being the quickest format to answer without compromising reliability, and Dolnicar (2013) argued that making surveys shorter can actually increase participation rates.

Because only one employee from each organisation could be approached, a number of measures were taken to address key informant bias. Participants were asked how knowledgeable they were on decisions about selecting target segments using a visual analogue response scale (from “not at all knowledgeable” to “extremely knowledgeable”). Using different response formats helped avoid common methods bias (Podasakoff et al. 2003).

4.3.4.1 Selecting target market segments in your company

Ten questions were included to assess how the targeting process was conducted in each respondent’s organisation. To assess where company revenues were generated from, respondents were asked “to which extent are your company’s revenues generated from addressing the whole market versus specific market segments?”. A visual analogue response scale with two anchors was used, “whole market” versus “specific segments only”. Similarly, to assess which strategy the company followed, a visual analogue scale with two anchors was used with the anchors “cost leadership” versus “differentiation strategy”.

Participants were asked to indicate the strength of agreement with statements about the targeting processes in their company. Participants were asked to indicate – on a five point scale - whether they “strongly disagree”, “disagree”, “neither agree nor disagree”, “agree” or “strongly agree” with six statements about their company (“our company has a clear process to determine how segments are selected”, “our company uses a clearly defined criteria to select segments”, “our company uses a checklist to select segments”, “our company uses inter-functional tools like the House-of-quality to assess segments”, “our company segments the market for the purpose of better understanding customer

needs and wants” and “our company targets one or more specific segments”). To further investigate whether any pre-specified processes were being followed, participants responded to the question “if your company uses a pre-specified process of any kind to select target segments, which of the following best described the nature of this process?” Eight answer options were presented, shown in Table 4.1.

Table 4.1 Pre-Specified Processes for Target Segment Selection

Process (inspired by)	Description
<i>N/A</i>	No, in our company no predefined process is used to select target segments.
<i>A policy</i> (Anderson 2005; U.S. Department of Veterans Affairs 2012)	A policy is a principle to guide decisions and achieve rational outcomes. A policy is intent, it is not a procedure or protocol.
<i>A guideline</i> (U.S. Department of Veterans Affairs 2012)	A guideline is a statement by which to determine a course of action. A guideline aims to streamline processes according to a set routine or sound practice. Using a guideline is not mandatory.
<i>A checklist</i> (authors own)	A checklist is a tool developed to reduce failure by compensating for potential limits of human memory and attention. It helps to ensure consistency and completeness in carrying out a task. Using a checklist is mandatory.
<i>A protocol</i> (Semantic science n.d.)	A protocol is a tool developed to standardize an approach to ensure successful replication by other people or at a later point in time. Protocols often include information on the calculation of results and reporting standards, including statistical analysis and rules for predefining and documenting excluded data to avoid bias. Using a protocol is mandatory.
<i>A schedule</i> (Siddharth &	A schedule consists of a list of a project's terminal elements with intended start and finish dates.

Umaranisrikanth 2013)	Terminal elements are the lowest element in a schedule, which is not further subdivided. Those items are often estimated in terms of resource requirements, budget and duration, linked by dependencies and scheduled events. Using a schedule is mandatory.
<i>A procedure</i> (Anderson 2005)	A Procedure is designed to describe Who, What, Where, When, and Why by means of establishing corporate accountability in support of the implementation of a “policy”. The “How” is further documented by each organizational unit in the form of “Work Instructions” which aims to further support a procedure by providing greater detail through work instruction which are a set of actions which have to be executed in the same manner in order to achieve intended results under the same circumstances. Using a procedure is mandatory.
N/A	Yes, we do have a predefined process but none of those listed above describe it well.

Two open-ended questions were included in this section of the survey, “can you please briefly outline the process of assessing segment attractiveness in your company” and “can you please briefly describe the criteria employed to assess segment attractiveness in your company?” Open-ended questions were used so the answers would not be limited to few predetermined options (Saris 2014). This was important as the two questions were scanned for quality control (Brace 2008).

To assess which steps of the S-T-P process (Kotler 1984) were undertaken, participants were asked whether their organisation would “set long-term corporate objectives”, “collect data for segmentation analysis”, “analyse data”, “define variables used for the segmentation”, “assess segment attractiveness”, “select segment(s) for targeting” and “define product positioning”. A binary answer option was provided (“Yes”, “No”), for each of the survey items.

Lastly, to assess whether any of the key S-T-P tasks were being outsourced (“collect data for segmentation analysis”, “analyse data”, “define variables used for the segmentation”, “assess segment attractiveness” and “select segment(s) for targeting”), participants were asked “do you outsource this task or do it internally?” Two agreement options were provided, “we outsource” and “we do this in-house”.

4.3.4.2 Usefulness of proposed segment assessment criteria

The main aim of this section was to have participants assess different lists of segment assessment criteria from literature. This was necessary to select which list would be used in Stage Two. Seventeen lists of segment assessment criteria were used in the assessment task, sixteen from literature (see Table 2.2) and one developed by the researcher in collaboration with his supervisors (see Table 4.2).

Table 4.2 Author’s Own List for Segment Assessment

Ensure that:

- (a) the customers in the different segments have distinct wants and needs
 - (b) you consider cannibalization effects for your existing products if you already serve the target segment
 - (c) the company is capable of offering competitive prices for products suitable to the target segment
 - (d) you are able to identify the most important product characteristics for the target segment
 - (e) you choose the target segment considering the number of potential customers
 - (f) you have all necessary capabilities and knowledge in your targeting team and each member knows about the capabilities of the other team members
 - (g) you consider costs (development, production) and available resources associated with serving the target segment
-

-
- (h) you choose the target segment after considering the number of potential customers
 - (i) your company can technically serve the target segment
 - (j) you choose the target segment after considering the product profit margins
 - (k) your company image fits with the development of a new product in the target segment
 - (l) you estimate sales and profits based on the expected number of customers, product profit margins, trends, competitors, and cannibalization effects for the target segment
 - (m) your company is able to develop competitive products for the target segment
 - (n) your company is able to effectively communicate with customers in the target segment
 - (o) you are able to come up with a new product for the target segment that is more attractive than competitors' products in important characteristics
 - (p) you choose the target segment after considering segment-specific trends and growth rates
 - (r) you choose the target segment after considering the number and strength of competitors in each segment.
-

Each participant was shown only two lists. These were randomly chosen from the 17 possible lists. Little (1970) developed basic requirements for management decision support tools to be useful for managers. Among them is to make sure that the tools are easy to understand and easy to use in practice (Little 1970). This is consistent with Gawande's (2009) recommendation that checklists should contain only important steps. Participants were asked to indicate on a five point scale how easy it would be to apply each criterion ("very difficult", "difficult", "a bit tricky", "easy", "very easy"), how important each criterion was for finding the best segment ("not important", "somewhat important", "important", "very important", "extremely important") and clear each criterion was ("totally unclear", "unclear", "partly unclear/clear", "clear", "crystal

clear”). Current frequency of criterion use was also assessed (“never”, “rarely”, “sometimes”, “often”, “always”).

After each criterion had been assessed individually, the two complete lists were presented side by side. Each participating manager was asked to indicate which of the two lists they would use (“List A”, “List B”, “Neither of the two”), and how useful each of the lists would be (“not useful at all”, “somewhat useful”, “useful”, “very useful”, “extremely useful”).

4.3.4.3 Checklist perceived usefulness

To measure the willingness to adopt targeting checklists in practice, participants were told that the two lists they compared (Section 4.3.4.2) were often referred to as checklists. Using a forced binary answer scale (“yes”, “no”), participants were asked to indicate if they would want their managers to use a checklist for selecting target markets, if they were the company owners.

Howard (2010) argued that checklists could limit the creativity of checklist users and add unnecessary bureaucracy. To investigate those issues, participants were asked to indicate the level of agreement on a five point scale (“strongly disagree” to “strongly agree”) whether checklists would lead to too much bureaucracy, limit managers’ creativity or if checklist simply could not work as each situation is different. Gawande (2009) argued that checklist help avoiding failure by making sure that important things are not forgotten or overseen. Again using a five point scale, participants were asked to indicate how useful checklists would be for ensuring that important factors were not overseen and how often important factors are forgotten when making key decisions in their company.

4.3.4.4 A few questions about your company and your role in the company

Using company performance measures proposed by Moorman and Rust (1999), participants were asked to indicate the overall performance of their company in the previous year and overall performance relative to major competitors. The same question was asked about overall innovation performance and overall segmentation performance. The answer format was a slider scale with two endpoints (“poor”, “excellent”). The scale was coded from 0 to 100.

Participants were asked to indicate how teams were structured in their company. Two answer options were provided, “team members are selected because they represent a function of the company (e.g. finance, manufacturing, marketing etc.)” and “team members are selected for other reasons (indicate which)?” Participants were also asked to indicate the level of perceived team conflict on a five point answer scale (“no conflict at all”, “low level of conflict”, “moderate level of conflict”, “high level of conflict”, “extremely high level of conflict”).

To assess how frequently team composition changed in their companies, one item was included. A slider scale was provided with two endpoints, “always same team members” and “always new team members”. One item was included to investigate how team performance was being assessed, by the team process outcome or the functional outcome (e.g. finance, manufacturing, marketing etc.). A slider scale was provided with the endpoints “team decisions success” and “function specific metrics”.

4.3.4.5 Background information

The last section of the questionnaire included questions about participant’s background and company information. This was done to ensure that the sample came from a large

range of industries and was not skewed in regards to gender, age or experience. The background variables consisted of:

1. Gender
2. Age
3. Industry the company operates in
4. Years since the company was established
5. Position in the company
6. Years of marketing industry experience

4.3.5 Data analysis

Data was delivered in a Statistical Package for the Social Sciences file (SPSS). Before delivering the file, the panel company responsible for data collection scanned the data for errors. Data was analysed using SPSS version 19 (IBM Corp. 2010). Cluster analysis was computed using the open-source statistical computing environment R (R Development Core Team 2008).

How organisations select target markets, formal processes for targeting and organisational performance and attitudes towards and willingness to adopt checklists was analysed using descriptive statistics (Ostle & Malone 1988).

To test the associations between the degree of formalization of the targeting process and firm, performance Analysis of Variance (ANOVA) was performed. This was done using five independent variables: (1) “Type of pre-specified process used to select target segments” (select one of eight answer options), (2) “Our company has a clear process to determine how segments are selected” (five point scale, strongly disagree to strongly

agree), (3) “Our company uses clearly defined criteria to select segments” (five point scale, strongly disagree to strongly agree) and (4) “Our company uses a checklist to select segments”.

To model the outcome, whether the number of criteria in a list affects the preference for a list an ordinal PROBIT model was applied. Here the checklist usefulness was the ordinal dependent variable as a function of managers’ assessment of each individual criterion contained in the list with respect to a) ease of use, b) clarity, and c) importance (using the average value over all criteria of a list) and the number of criteria of the respective checklists. An optimal number of criteria was expected, and therefore the squared number of criteria was also considered as an independent variable.

As discussed in Chapter 2, the nature and number of criteria in the identified lists varies substantially. As an indication of criterion relevance, how often each criterion was recommended was calculated. The frequencies were calculated for each sub-criterion (e.g., marketing mix consistent with corporate goals); sub-criteria were then grouped under an umbrella criterion (e.g., Product-Market Fit). See Table 4.4 for details.

Table 4.3 Frequency Use of Criterion in Literature

Criteria	Sub-Criteria 1	Sub-Criteria 2	Freq.
Substantial	Size		21
		Market Potential	2
		Market Penetration	1
		Product Life Cycle Position	3
		Volume / Number of customers	4
		Purchasing Power	2
		Market Share	0
		Sales Revenue	4
		NSMD*	5

	Profitability / Margins		24
		Size large enough to be profitable	7
		Size large enough to justify marketing effort	6
		Customer Lifetime Value (LTV)	0
		Breakeven Analysis	0
		Net Present Value	0
		Payback Period	0
		NSMD*	11
	Growth Rate		17
		Future Revenues	5
		Favourable Environmental Factors	1
		Profit Potential	4
		Past Growth Forecasts of Technology Change	1
		NSMD*	6
Competition	Competition		28
		Maximum Differential in Competitive Strategy	5
		Preserve Competitive Advantage	3
		Valid even though Imitated	1
		Threat from Substitutes	4
		Types of Competition, Degree of Concentration, Changes in Type and Mix, Degrees and Types of Integration	10
		NSMD*	5
Barriers	Barriers		18
		Entry Barriers	5
		Exit Barriers	3
		Bargaining Power of Buyers	3
		Bargaining Power of Suppliers	5
		Patentability	2

Socio-Political Risk, Demand Risk	Socio-Political Risk, Demand Risk		17
		Environmental Factors (Technological Considerations, Sensitivity to Price, Socio-Political Trends and Considerations, Economic Considerations Seasonality - demand and supply, Conflicts with Stakeholders, Legal Issues)	17
Synergies and Cannibalisation	Synergies and Cannibalisation		2
		Relationship with Other Segments (Synergy, Cost Interactions, Image Transfers, Cannibalization)	2
Differentiable	Differences in Segment Needs and Wants, and Responses to Marketing Mix		21
		Segments Respond Differently to Different Marketing Mix	7
		Real Differences in Needs and Wants of Segments	6
		Respond Consistently to Offers / Homogenous Within	5
		Differentiable NSMD*	3
Feasibility	Measurable		20
		Size	5
		Purchasing Power	4
		Present or Potential Volume / No of Customers	1
		Rate of Growth	0
		Income	1
		Rate of Consumption	0
		Frequency of Buying	0
		Characteristics of Segment / Product	6
		NSMD*	3

Actionable		37
	Develop effective marketing programs/provide distinct marketing strategy to attract customers	18
	Reach with Marketing Communications	9
	Reach with Distribution Channels	3
	NSMD*	7
Product-Market Fit		26
	Marketing mix consistent with Corporate Goals	5
	Marketing mix consistent with Core Competencies / Expertise	6
	Align Segment Size and Budget Size	4
	Resources	6
	Fit with Organisational Factors such Image, Culture, Structure, Operational Considerations, Leveraging factors (Economies of Scale, Experience)	5
	NSMD*	0

*NSMD - Not Specified More Detailed

Managers' assessment of each individual criterion and its relation to performance are reported on the top level (see "Criteria" level in Table 4.5).

4.4 Findings

4.4.1 How organisations select target markets

The majority of companies in the sample perform all of the steps in the S-T-P framework and do so in-house. Of the total sample, 87 percent set long-term corporate objectives and 74 percent do this in-house, 83 percent collect data for segmentation analysis and 53 percent do this in-house, 87 percent analyse data and 66 percent do this in-house, 74 percent define variables used for the segmentation and 60 percent do this

in-house, 83 percent assess segment attractiveness and 70 percent do this in-house, 87 percent select segments for targeting and 78 percent do this in-house, 80 percent define product positioning and 71 percent do this in-house.

Cross-functional structure is the dominant team structure in this sample, where 85 percent of participants report that teams consisting of representatives of key organizational units, such as finance, manufacturing and marketing are responsible for making decisions. No pattern in changes to team membership was identified, some regularly changed members and some worked together throughout projects. Team conflict varies across organisations as only 13 percent report no conflict at all, 27 percent only moderate level of conflict, 14 percent high level of conflict and 3 percent report an extremely high level of conflict.

Team members are frequently assessed by the success of the targeting decision on performance measures specific to their “functional unit success”, where 52 percent of managers responded at the top end of the 100 point slider scale, opposed to the 25 percent of managers who respond in the bottom third of the scale which stood for “team decision success”.

4.4.2 Formal processes for targeting and organisational performance

As can be seen in Table 4.4, all analyses show significantly positive associations between the formalisation of the target segment selection process and the three performance measures, segmentation performance, innovation performance and business performance. Companies that do not apply a pre-specified process show average performance levels of 60 for segmentation performance, 54 for innovation performance and 65 for overall performance, significantly worse than companies

applying formalised process. Performance related to the different types of processes used by companies varies slightly, where checklist performance averages between 73.1 and 76.3.

Table 4.4 The Association Between Formal Targeting Processes and Performance

	Percentage of sample	Segmentation Performance (mean)	Innovation Performance (mean)	Business Performance (mean)
Prespecified process used to select target segments - ANOVA <i>p</i> – value		.009	.000	.033
No, in our company, no predefined process is used to select target segments.	7.6	60.2	54.4	65.4
A policy is used. A policy is a principle to guide decisions and achieve rational outcomes. A policy is an intent ¹ ...	11.7	77.4	81.3	81.3
A guideline is used. A guideline is a statement with which to determine a course of action. A guideline aims to streamline...	19.7	72.1	72.8	75.0

¹ Full description of items provided in Table 4.1

A checklist is used. A checklist is a tool developed to reduce failure by compensating for potential limits of human...	16.6	73.1	75.8	76.3
A protocol is used. A protocol is a tool developed to standardize an approach to ensure successful replication...	15.2	71.5	70.2	71.2
A schedule is used. A schedule consists of a list of a project's terminal elements with intended start and finish dates...	5.8	81.0	78.5	78.0
A procedure is used. A procedure is designed to describe Who, What, Where, When, and Why by means of establishing...	19.3	75.0	75.7	74.8
Yes, we do have a predefined process, but none of those listed above describe it well.	4.0	79.8	76.4	80.4

The findings in Table 4.4 are further supported by managers' responses to statements about the use of processes and criteria, as tested with the three items; "Our company has a clear process to determine how segments are selected", "Our company uses clearly defined criteria to select segments" and "Our company uses a checklist to select segments". This is shown in Table 4.5 where higher levels of agreement with the three statements are associated with significantly higher performance.

Table 4.5 Managers' Statements About Criteria Use

	Segmentation Performance (mean)	Innovation Performance (mean)	Business Performance (mean)
“Our company has a clear process to determine how segments are selected” - ANOVA p – value	.000	.001	.057
Strongly disagree	66.3	71.4	71.2
Disagree	50.4	54.3	70.3
Neither agree nor disagree	68.5	67.9	66.8
Agree	72.6	73.3	75.2
Strongly agree	79.1	78.0	77.8
“Our company uses clearly defined criteria to select segments” - ANOVA p – value	.000	.005	.001
Strongly disagree	73.4	77.7	91.7
Disagree	53.6	59.1	62.6
Neither agree nor disagree	70.0	66.4	68.4
Agree	71.3	73.0	74.7
Strongly agree	80.5	78.5	78.1
“Our company uses a checklist to select segments” - ANOVA p – value	.000	.000	.001
Strongly disagree	64.4	64.3	76.1
Disagree	58.8	56.1	65.8
Neither agree nor disagree	70.7	71.1	71.0
Agree	74.3	75.4	75.9
Strongly agree	81.6	81.1	81.3

4.4.3 Manager's assessment of checklists proposed in the academic literature.

Every participant was shown two of 17 possible checklists. Participants assessed each criterion on the two lists in terms of importance for making good target segment decisions, clarity and ease of use. Table 4.6 shows criteria from all lists combined into umbrella categories according to the classification discussed in Table 4.4, here ordered by overall assessment.

Size was perceived to be the most important and clearest of the criteria, and risk was the least important, hardest to apply practically and least clear. As can be seen, all criteria usage intensity and performance correlations that are positive are also significant. The average correlation level is highest for segmentation performance and lowest for business performance.

Table 4.6 Managers' Assessment of Criteria and Correlations between Firms' Criterion Use and Performance

Criterion	N	Average criterion usefulness assessment ^a	r(Seg. Perf.)	r(Innov. Perf.)	r(Busin. Perf.)
Size	205	2.71	.281**	.134	.130
Profitability Margins	223	2.70	.357**	.269**	.205**
Competition	192	2.69	.232**	.235**	.114
Measurable	177	2.69	.383**	.332**	.235**
Actionable	223	2.68	.369**	.248**	.238**
Cannibalization	51	2.67	.195	-.024	-.067
Barriers	104	2.67	.191	.240*	.117
Growth Rate	204	2.67	.316**	.202*	.194**
Differences in Response to Marketing Mix	208	2.67	.240**	.178*	.121
Product-Market Fit	188	2.65	.326**	.137	.091
Risk	119	2.58	.141	.182*	.020

* $p < .1$

** $p < .05$

^aMeasured on a five-point scale with 0 denoting difficult, not important, and not clear.

Once participants had assessed each criterion (Table 4.6) of the two randomly chosen lists, both complete lists were presented side by side. Participants were then asked to assess the complete lists and select the list they would prefer using (or choose neither of them). Results from this comparison task are presented in Table 4.7. The list developed by Lilien and Rangaswamy (2004) was most preferred; it was chosen 77 percent of the

time when compared to an alternative list. The authors' list made it to the top 10, but was only chosen in 56 percent of cases. Consequently, the list of criteria proposed by Lilien and Rangaswamy (2004) was used in Stage Two of the study (Chapter 5).

Table 4.7 Managers' Preferred Criteria Lists and Respective Usefulness Ratings

Textbook	Chosen/Presented	Average usefulness rating ^a
Lilien and Rangaswamy (2004)	77%	3.0
Croft (1994)	62%	2.5
Jain et al. (2012)	61%	2.7
Wedel and Kamakura (2000)	58%	2.4
Myers (1996)	57%	2.6
Kotler and Keller (2012)	56%	2.6
Authors' own list	56%	2.9
Pride et al. (2012)	55%	3.0
Sternthal and Tybout (2010)	54%	2.7
Dibb and Simkin (2008)	48%	2.6

^aShowing the ten most frequently selected criteria (discipline) for checklists, measured on a five-point scale with 0 denoting not useful at all

4.4.4 Factors affecting managers' preference for criteria lists.

The estimation of a Probit model for the ordinal dependent variable (checklist usefulness) shows a highly significant linear ($b = 0.158$, $p < .01$) and squared ($b = -0.00467$, $p < .01$) effect for the number of criteria supporting the expectation (see

Section 4.3.5) that an optimal level for the number of criteria exists. Thus, overall checklist usefulness as stated by managers is significantly related to checklist length. The relationship between the number of criteria that a checklist contains and its usefulness follows an inverted U-shape as Figure 4.1 illustrates.

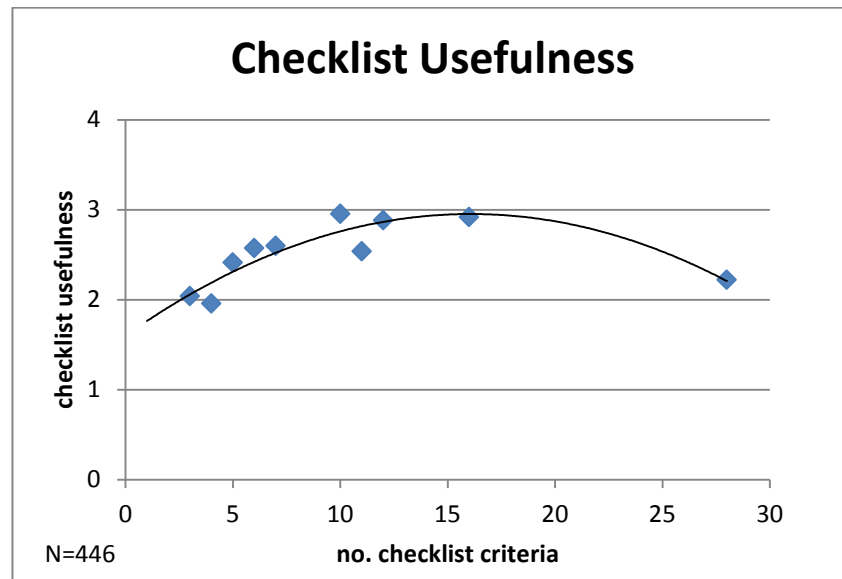


Figure 4.1 Perceived Checklist Usefulness as a Function of the Number and the Squared Number of Checklist Criteria

Data points in Figure 4.1 indicate average usefulness values for checklists with the respective number of criteria. These data points show how perceived checklist usefulness increases with the number of criteria up to a level of 16 criteria (optimum) and then decreases as the number of criteria increases. Furthermore, perceived checklist usefulness is significantly driven by the perceived ease-of-use ($b = 0.166$, $p < .05$) and importance ($b = 0.401$, $p < .01$). Clearness ($b = 0.155$, $p < .1$) exerts only a marginal impact on managers' perceived checklist usefulness. The number of criteria for each

checklist was determined based on the targeting criterion classification, as measured at the subcriterion level (see Table 4.3).

4.4.5 Attitudes towards and willingness to adopt checklists.

Participants were positive about checklists, with 84 percent indicating that they would want their managers to use checklists for target segment selection if they owned a firm. When asked whether it occasionally happens in their company that important factors in the targeting decision have not been checked, 57 percent of participants admit that this is the case and only 14 percent state that this is not the case. Participants seem to believe that checklists have the potential to avoid this failure as 78 percent agreed with the statement that the use of checklists would be useful in their firm to make sure important factors are not overseen. One third of participants expressed concerns about the increase in bureaucracy, 39 percent thought it would limit creativity and 40 percent felt that checklists would not work because each situation is different.

4.4.6 Sample description

Table 4.8 provides a profile of the sample. Respondents were not allowed to omit any of the background questions; therefore all percentage values reported are valid percentages.

Table 4.8 Sample Description

	Number	Percentage of sample
SEX		
Male	121	54.3
Female	102	45.7

AGE		
21-30	53	23.8
31-40	80	35.9
41-50	44	19.7
51-60	33	14.8
Over 60	13	5.7
INDUSTRY COMPANY OPERATES IN		
Agriculture, Forestry, Fishing and Hunting	1	0.4
Mining, Quarrying, and Oil and Gas Extraction	1	0.4
Utilities	3	1.3
Construction	14	6.3
Manufacturing	33	14.8
Wholesale Trade	4	1.8
Retail Trade	26	11.7
Transportation and Warehousing	4	1.8
Information	14	6.3
Finance and Insurance	16	7.2
Real Estate and Rental and Leasing	6	2.7
Professional, Scientific, and Technical Services	26	11.7
Management of Companies and Enterprises	11	4.9
Administrative and Support and Waste Management and Remediation Services	3	1.3
Educational Services	8	3.6
Healthcare and Social Assistance	21	9.4
Arts, Entertainment, and Recreation	7	3.1
Accommodation and Food Service	6	2.7
Other Services (except Public Administration)	19	8.5
YEARS SINCE COMPANY WAS ESTABLISHED		
0-10	39	17.5
11-20	48	21.5
21-30	44	19.7
31-40	27	12.1
41-50	23	10.3
Over 50	42	18.8
POSITION IN COMPANY		
The manager of a department within the marketing unit	57	25.6
Marketing Manager	53	23.8
Sales Manager	30	13.5
Chief Marketing Officer (CMO)	17	7.6
Chief Executive Officer (CEO)	24	10.8
Chief Financial Officer (CFO)	5	2.2
Other	37	16.6

YEARS OF MARKETING INDUSTRY EXPERIENCE

5 or less	60	26.9
6-10	61	27.4
11-20	68	30.5
21-30	24	10.8
30 or more	10	4.5

Fifty-four percent of the sample was male, 46 percent female. Over a third of respondents were 31 to 40 years old. The sample was relatively experienced with 46 percent of the sample having at least 10 years of experience in the marketing industry. Only 27 percent had five years of experience or less. A majority defined themselves as either managers in the marketing unit, marketing managers or Chief Marketing officers. Over a third of respondents were from three of the 19 industries reported in the survey, where 14.8 percent came from manufacturing, 11.7 percent from retail and 11.7 percent from professional services. Majority of companies in the sample were well established, as only 17.5 percent had been established in the last 10 years, other companies were older.

4.5 Summary of main findings

This chapter has outlined the method and reported the findings of a survey conducted to determine managerial preference for targeting checklists in literature and assess the perceived usefulness of checklists use in practice. Most of the 223 managers in the sample report that their company performs all of the steps in S-T-P framework, and do so in-house. Cross-functional structure is the dominant team structure. A promising finding for the future use of checklist in marketing is the fact that use of a formal process appears to increase company performance, and 92 percent of the sample claim

to be using one of the seven different pre-specified processes assessed in the survey. Companies that do not use a pre-specified process perform significantly worse than those that do. Results indicate that 16 is the optimal number of criteria in a targeting list, where size is perceived to be both the most important and clearest criterion. Participants were positive about checklists; most would use checklists for target segment selection if they owned a firm.

The list of criteria by Lilien and Rangaswamy was perceived to be the most useful of those assessed from literature. In the following chapter, this list will be converted to a discipline checklist to examine the effect of using discipline checklist on company performance in a laboratory experiment, and to compare the checklist's performance with two other types of checklists.

5 Stage Two - Methodology and Findings

5.1 Introduction

In previous chapters, checklist research was discussed (Chapter 2) and the list of criteria for segment assessment most preferred by managers (Stage One) was identified (Chapter 4). A list by Lilien and Rangaswamy (2004) was identified by managers as the most preferred list. The purpose of this chapter (Stage Two) is to describe the development, comparison and assessment of the different types of checklists depicted in the conceptual framework (Figure 3.1 – *Coordination checklist, discipline checklist, coordination-and-discipline checklist*)

5.2 Justification for Employing Experimental Research

Three checklists were developed building on Fox's (2010) taxonomy of checklists and the aim was to determine how they interact with different team structure. Seven hypotheses were developed

- Checklist use will increase the number of criteria considered (H1)
- Checklist use will reduce coordination difficulties (H2)
- Cross-functional teams inspect more criteria than conventional teams (H3)
- Experienced teams inspect more criteria than newly formed teams (H4)
- A higher number of criteria considered improve performance (H5)
- Fewer coordination difficulties improve performance (H6)
- Checklist use, cross-functional team structure, and greater team experience improve team performance, mediated by the number of criteria applied and coordination difficulties (H7)

All seven of the hypotheses were tested in a controlled marketing simulation experiment. An experimental approach was used because the aim is to draw conclusions about cause and effect (Dean & Voss 1998). Here the goal was to assess whether checklists improved targeting decisions by reducing product failure rates and improving profit performance. Simultaneously the study aimed at investigating which of the three types of checklists best served to improve performance.

Using the experimental method in a laboratory allowed for the comparison of the different checklist types and team structures because possible external influences were controlled for. This would have been impossible in a natural setting.

5.3 Stage Two Method

Students were used as surrogates for managers, solving tasks in a simulated marketing environment. A 4 (types of checklists: between subjects) x 2 (types of team: between subjects) x 2 (types of experience: within subjects) factorial design was used. This factorial design was chosen because it is considered to be more informative than using completely randomized designs (Webster & Sell 2007). The design resulted in 16 different treatment conditions, “type of list” indicating which checklist was implemented, “functional roles” indicating whether functional roles were allocated to participants or not, and “experience” indicating if groups had played the game once before, see Table 5.1.

Table 5.1 Factorial Design

Group #	Type of checklist	Functional roles	Experience
1	Control	No	No
2	Control	No	Yes
3	Control	Yes	No
4	Control	Yes	Yes
5	Discipline list	No	No
6	Discipline list	No	Yes
7	Discipline list	Yes	No
8	Discipline list	Yes	Yes
9	Coordination list	No	No
10	Coordination list	No	Yes
11	Coordination list	Yes	No
12	Coordination list	Yes	Yes
13	Discipline & Coordination list	No	No
14	Discipline & Coordination list	No	Yes
15	Discipline & Coordination list	Yes	No
16	Discipline & Coordination list	Yes	Yes

5.3.1 Experimental design

Each participant was required to attend two separate one-hour sessions one week apart. A maximum of 30 students were assigned to each session in week one and all participants were required to participate in the same groups in the following week. One of the eight treatment conditions 4 ((types of checklists: between subjects) x 2 (types of team: between subjects)) was assigned to each session in week one and same conditions were assigned participants in the following week. As a result each participant was only exposed to one type of checklist and one functional role throughout the experiment.

There were 22 experiment sessions held each week; 44 in total. The earliest sessions started at 8:30 am, the latest sessions ended at 8:30 pm. Treatment conditions were allocated ensuring that each condition got exposure both in the morning and in the afternoon to control for potential effects of mental fatigue (Offner 1911), as mental

fatigue has been found increase throughout the day and affect participant's decision making (Danziger, Levav & Avnaim-Pesso 2011).

Table 5.2 Treatment Timing

Type of list applied	Functional roles applied	Time of experimental session	
		Morning	Afternoon
Control	No	Monday / Wednesday	Tuesday / Friday
Control	Yes	Monday / Friday	Wednesday / Thursday
Discipline list	No	Wednesday	Monday / Friday
Discipline list	Yes	Wednesday / Friday	Monday
Coordination list	No	Tuesday / Thursday	Wednesday / Friday
Coordination list	Yes	Tuesday / Friday	Thursday
Discipline & Coordination list	No	Thursday	Tuesday / Friday
Discipline & Coordination list	Yes	Monday	Tuesday / Thursday

To ensure that all participants were exposed to the same stimuli, an administration checklist was prepared. A sample is provided in Table 5.3.

Table 5.3 Administrator Checklist for Experiment Sessions

Timeline	Event	Action	X
Before class	MARK101 labels	Make sure class room is labelled and easy to find	
0:00-0:10	Students arrive	Put Participant information sheet on projector	
		Prepare stopwatch on projector	
		Put table numbers in place	
		<i>Make sure only three students share a desk</i>	
		Put bells in place	
		Markers put in place	
		Voice recorders ready	
		Login to computers	
		Login to web access system for each group	
		Put introduction pages on desks	
0:10-0:15	Welcome	<i>TIMING STARTS</i>	
		<i>Highlight following key points verbally:</i>	
		<i>Study is part of PhD</i>	
		<i>Recording for research</i>	
		<i>No participation marks</i>	
		<i>Market simulation in teams of 3</i>	
		<i>\$100 for best performing</i>	
		<i>Use bell for help (step 7 where applicable)</i>	
		<i>Time to complete is tight</i>	
		<i>Ensure all have read introduction</i>	
0:15		Ensure checklists are on all tables	
		Ensure answer sheets on all tables	
0:20		Ensure case descriptions are on all tables	
		<i>Checklist usage reminder #1</i>	
0:25		Distribute handbooks if no bell rings	
		<i>Checklist usage reminder #2</i>	
0:30		<i>15 min to COMPLETE NOTIFICATION</i>	
		<i>Checklist usage check</i>	
		Check labels on sheets	
		Add group labels if needed	
		<i>Checklist reminder #3</i>	
0:40		<i>10 MIN TO GO NOTIFICATION</i>	
0:45		<i>5 MIN TO GO (and then 2 min to go)</i>	
0:50		Collect answer sheets	
		Replace with individual survey	
		<i>Remind that survey is INDIVIDUAL</i>	

5.3.1.1 Participants

Participants were undergraduate students enrolled in “Marketing Principles”, a capstone marketing course at the University of Wollongong. Students were used as surrogates for managers in the experiment as getting the sufficient number of managers needed for the 4 x 2 x 2 factorial design was not considered a feasible option. Students have been used successfully as surrogates in previous experimental research (Remus 1986; Earley & Lind 1987; Canri, Steven & Carmelita 2011). When comparing the two groups, students and managers in a simulation study, Remus (1986) did not find that one of the groups significantly outperformed the other.

Of 480 students in the capstone course, 430 (53 percent female) participated in the study after accepting the invitation to participate. Students were required to attend 60 minute long weekly tutorials as part of the course final assessment. The experiment took place during those tutorial sessions and refusing to participate did not affect the overall course assessment. This was reflected in a Participant Information Sheet (see Appendix B) which was available to all students before the experiment. To ensure that all potential participants were aware of what was involved, a script was followed in each tutorial when introducing the experiment (see Appendix C). Those who refused to participate were given the option of observing others participating. The Participant information sheet and the recruitment method were both approved by the University of Wollongong Human Research Ethics Committee (Approval number HE13/181).

5.3.1.2 Data collection

All participants were required to complete two written answer sheets: (1) a team answer sheet which was used for the simulation software to assess team performance

(Appendix D), and (2) individual answer sheet for comparing checklist influence on team communication (Appendix E). Team answer sheets were distributed at the beginning of each session and needed to be completed jointly by all team members before the end of each session. Team answer sheets were identical in both week one and week two sessions, with one exception; three vehicle categories in the game were changed from week one to week two (see details in Section 5.3.1.4)

The most important data was the team answer sheets, as those answers determined team performance in the simulation. Only after all team answer sheets had been collected near the end of each session, individual answer sheets were distributed. Completed individual answer sheets were collected after the session as participants left the laboratory.

5.3.1.3 Team structure

Two team structures were compared: the conventional team structure with a common incentive and cross-functional team structure with individual roles and incentives (Denison, Hart and Kahn 1996). The cross-functional structure was used because this structure is popular in practice (Sethi, Smith & Park 2001) where differences in backgrounds of team members are considered to be an important contributor to successful product launches (Brown & Eisenhardt 1995).

Common incentives were used for the conventional teams to minimize the risk of team member self-interest affecting the team decision. Self-interest is less likely to occur when goal structure is the same among managers (Thompson 1967). Individual incentives were used to generate self-interest in the outcome among cross-functional team members, as different goals among team members can have negative impact on

team decisions (Macmillan & Guth 1986). Deutsch's theory of cooperation (Deutsch 1949; Deutsch 1980) provides the theoretical foundation for using the different incentives, as this theory has proved to be useful when investigating decision making in controlled conditions (Hatcher & Ross 1991). The theory recommends implementing contrient interdependence, which is where one decision maker attains his objectives at the expense of other team member's objectives (Hatcher & Ross 1991). The different outcomes are negatively correlated. The conflicting interests arising from different goals have the potential to increase coordination difficulties and impact performance (Macmillan & Guth 1986).

Teams consisted of three students. This group size was chosen because this has been found to be the optimal team size for business simulations (Wolfe & Chacko 1983). Teams were formed when participants attended the first session; the first participant to enter the laboratory was allocated to team number one, the next participant to team number two and so forth, until all participants had been put in a team. Where functional roles were applied (three roles CEO, CMO and CTO), roles were allocated randomly by the researcher five minutes before participants started playing the simulation game.

5.3.1.4 Experience

The students participated in two separate experiment sessions and were assigned to the same teams during both the sessions. This procedure was undertaken to distinguish between first-time teamwork (experiment session in week one) and repeated teamwork (experiment session in week two). The experiment task was the same in both sessions, apart from one change which was made to the game data, and measures were taken to ensure that the two experiment sessions were as similar as possible. All team decisions

were inspected after session one, and the two most frequently chosen target markets in the simulation in week one were replaced by two new target markets in week two. This was the only change made to the game data and was done to make any decisions from the previous week either impossible to replicate, or seem less attractive. In so doing, participants were required to analyse all target segments again using the checklists (except the control group which did not receive a checklist).

5.3.1.5 Targeting checklists

5.3.1.5.1 Coordination checklists

The coordination list was developed following 26 steps recommended by Gawande and his team (2010) in the “Checklist for checklists” (see Figure 2.4). A first draft of the coordination checklist was developed by the author in collaboration with his supervisors. The first version (see Figure 5.2) was developed after getting familiar with the *Stratsim* market simulation environment and playing the game few times.

STEPS TO FOLLOW	CHECK WHEN COMPLETED
STEP 1: Introduce yourself to the team by saying your name.	<input type="checkbox"/>
STEP 2: Select one team member who will be responsible for ensuring all the steps on the checklists will be completed.	<input type="checkbox"/>
STEP 3: Study the available information.	<input type="checkbox"/>
STEP 4: Of the criteria proposed in literature for the selection of target segments, select those that you think are important for your company.	<input type="checkbox"/>
STEP 5: Jointly, assess each of the segments using the criteria.	<input type="checkbox"/>
STEP 6: Jointly, select the market segment to target.	<input type="checkbox"/>
STEP 7: Jointly, specify what the car will look like that you will develop for this market segment.	<input type="checkbox"/>

Figure 5.1 Coordination Checklist, First Draft

After completing the first draft of the coordination list, the checklist was assessed using the first two phases of the three phases in the “Checklist for checklists” (Gawande et al. 2010). A summary of the two phases is shown in Table 5.4.

Table 5.4 Summary of Checklist for Checklist first Two Phases (source: Gawande et al. 2010)

DEVELOPMENT	DRAFTING
<ul style="list-style-type: none"> Do you have clear, concise objectives for your checklist? (1A)* 	Does the Checklist:
Is each item:	<ul style="list-style-type: none"> Utilize natural breaks in workflow (pause points)? (2A)
<ul style="list-style-type: none"> A critical safety step and in great danger of being missed? (1B) 	<ul style="list-style-type: none"> Use simple sentence structure and basic language? (2B)
<ul style="list-style-type: none"> Not adequately checked by other mechanisms? (1C) 	<ul style="list-style-type: none"> Have a title that reflects its objectives? (2C)
<ul style="list-style-type: none"> Actionable, with a specific response required for each item? (1D) 	<ul style="list-style-type: none"> Have a simple, uncluttered, and logical format? (2D)
<ul style="list-style-type: none"> Designed to be read aloud as a verbal check? (1E) 	<ul style="list-style-type: none"> Fit on one page? (2E)
<ul style="list-style-type: none"> One that can be affected by the use of a checklist? (1F) 	<ul style="list-style-type: none"> Minimize the use of colour? (2F)
Have you considered:	Is the font:
<ul style="list-style-type: none"> Adding items that will improve communication among team members? (1G) 	<ul style="list-style-type: none"> Sans serif?(2G)
<ul style="list-style-type: none"> Involving all members of the team in the checklist creation process? (1E) 	<ul style="list-style-type: none"> Upper and lower case text? (2H)
	<ul style="list-style-type: none"> Large enough to be read easily? (2I)
	<ul style="list-style-type: none"> Dark on a light background? (2J)
	<ul style="list-style-type: none"> Are there fewer than 10 items per pause point? (2K)
	<ul style="list-style-type: none"> Is the date of creation (or revision) clearly marked? (2L)

**italics added in thesis for clarification*

A number of changes were made to the coordination list after the two phases had been reviewed. An example of a change made the first draft, based on guidelines proposed by Gawande and his team (2010) can be seen in “STEP 4” in Figure 5.2. Here “Ensure that everyone in your team understands that your team objective is to maximize profit” has been added to the list, which was not included previously. This addition to the list is

consistent with the first recommendation (*IA*) in Table 5.4 where it is recommended that the objectives are clear and concise.

11 STEPS TO FOLLOW	CHECK BOX WHEN COMPLETED				
STEP 1 Introduce yourself to the team by saying your name and what you are particularly good at.	<input type="checkbox"/>				
STEP 2 Select one team member who will be responsible for ensuring that all the steps on this checklist will be completed and boxes ticked. Person responsible sign here: _____	<input type="checkbox"/>				
STEP 3 Take a look at the two page answer sheet so that you understand your deliverables.	<input type="checkbox"/>				
STEP 4 Ensure that everyone in your team understands that your team objective is to maximize profit.	<input type="checkbox"/>				
STEP 5 Get an overview of the remaining steps of this checklist before continuing with STEP 6. This overview will give you an idea about how to analyze the information in this game.	<input type="checkbox"/>				
STEP 6 Read the three-page case description and then go back to the checklist as soon as possible.	<input type="checkbox"/>				
STEP 7 Now notify the researcher that you have reached STEP 7, and he will provide you with additional information needed to solve the case. Use this information as indicated by the following steps.	<input type="checkbox"/>				
	Family	Luxury	Minivan	Utility	Alternative
STEP 8 Now select the most attractive vehicle class(es). Indicate selected vehicle classes by ticking the checkboxes. Take the black marker and cross out all vehicle classes that you have not selected; cross out the entire column in the dark grey section for those vehicles; you will no longer consider those vehicle classes from now on.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 9 Assess whether your company can develop effective vehicles for the selected vehicle classes. If not, cross out those vehicle classes you cannot serve with the black marker in the grey section starting in this row; you will no longer consider those vehicle classes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 10 Now select the segments you can most effectively reach and serve. Indicate the final selected vehicle class by ticking the checkbox.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 11 Enter your final vehicle class choice and product specification on the ANSWER SHEET	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 5.2 Coordination Checklist, Final Version

The checklist was pilot tested and improved four times before the experiment was conducted. Each time, three higher degree research students played the *Stratsim* marketing simulation, using the same documents and playing the same version of the simulation game as would be used in the actual experiment. The researcher observed the participants' behaviour in each pilot testing session, noted if participants either stopped using the checklist, got confused or when team discussion drifted off topic. After each session the researcher and participants discussed these observations. Participants were finally asked to suggest changes that would have made the checklist more useful for coordinating their actions and solving the case.

The checklist was then updated and tested with a three new groups of participants, following the same observation and discussion process. During the fourth and final test, neither the researcher observed any issues nor the participants reported any major difficulties in either coordinating activities or finding a solution to the game that all members agreed on.

In the third and last phase of the "Checklist for checklists" (see Figure 2.4 for review) proposed by Gawande et al. (2010), few key actions are recommended before using the lists in practice. It was recommended to trial lists in simulated situations, modify in response to trials, make sure checklists are error free, that they fit the flow of work and could be completed reasonably quickly, and that plans are made to review the list at a later stage. In the development of the final version of the targeting checklist all of the recommended steps were followed by the researcher, except the review step which was omitted. An overview of main changes from first draft to final version is provided in Table 5.5.

Table 5.5 Overview of Main Changes from First Draft to Final Version of the Coordination Checklist

Steps	First draft	Final version	Changes made
1	Introduce yourself to the team by saying your name.	Introduce yourself to the team by saying your name and what you are particularly good at.	Suggested as participants had different roles in the game (CEO, CMO & CTO)
2	Select one team member who will be responsible for ensuring all the steps on the checklists will be completed.	Select one team member who will be responsible for ensuring that all the steps on this checklist will be completed and boxes ticked. Person responsible sign here: _____	Users were unsure who was “responsible” for following the checklist and in some cases they stopped using the list after step 2. Signature improved this.
3	Study the available information.	Take a look at the two page answer sheet so that you understand your deliverables.	Step 3 took too long as participants did not know where to start
4	Of the criteria proposed in literature for the selection of target segments, select those that you think are important for your company.	Ensure that everyone in your team understands that your team objective is to maximize profit.	Some participants were unaware of criteria proposed in literature. Although stated clearly in game documents, the objective was unclear to some of the participants.
5		Get an overview of the remaining steps of this checklist before continuing with STEP 6. This overview will give you an idea about how to analyze the information in this game.	Step was added as participants needed more clarity and direction on how to proceed.
6		Read the three-page case description and then go back to the checklist as soon as possible.	The game contains a number of documents. Documents were split up in two packages to provide more clarity
7		Now notify the researcher that you have reached STEP 7, and he will provide you with additional information needed to solve the case. Use this information as indicated by the following steps.	Participants received the second package.

8 (5)	Jointly, assess each of the segments using the criteria.	Now select the most attractive vehicle class(es). Indicate selected vehicle classes by ticking the checkboxes. Take the black marker and cross out all vehicle classes that you have not selected; cross out the entire column in the dark grey section for those vehicles; you will no longer consider those vehicle classes from now on.	Step was improved as participants claimed to need more guidance on how to proceed.
9		Assess whether your company can develop effective vehicles for the selected vehicle classes. If not, cross out those vehicle classes you cannot serve with the black marker in the grey section starting in this row; you will no longer consider those vehicle classes.	Step was improved as participants claimed to need more guidance on how to proceed.
10 (6)	Jointly, select the market segment to target.	Now select the segments you can most effectively reach and serve. Indicate the final selected vehicle class by ticking the checkbox.	In two occasions participants stopped ticking checkboxes, although the checklist was used.
11 (7)	Jointly, specify what the car will look like that you will develop for this market segment.	Enter your final vehicle class choice and product specification on the ANSWER SHEET	As a computer cost calculator was used participants did not remember to complete the paper based answer sheet.

5.3.1.5.2 Discipline checklist

To develop the discipline list, segment assessment criteria proposed in the literature needed to be assessed. Chapter 2 proposed a large number of lists while Chapter 3 argued that any of these could easily be converted to discipline checklist format. Due to the high number of lists of assessment criteria in the literature, transforming them all to discipline checklists and testing them would have required an extremely high number of participants. Therefore, the different lists of criteria were assessed by managers in Chapter 4, with Lilien and Rangaswamy's (2004) chosen as the most preferred list. Figure 5.3 illustrates this list in the checklist format.

4 STEPS TO FOLLOW		CHECK BOX WHEN COMPLETED				
Vehicle classes:		Economy	Sports	Minivan	Truck	Alternative energy
I. Size & Growth						
Size: Market potential, current market penetration		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Growth: Past growth, forecasts of technology change		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
II. Structural Characteristics						
Competition: Barriers to entry, barriers to exit, position of competitors, ability to retaliate		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Segment saturation: Gaps in the market		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protectability: Patentability of products, barriers to entry		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental risk: Economic, political, and technological change		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
III. Product-Market Fit						
Fit: Coherence with company's strengths and image		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relationships with other segments: Synergy, cost interactions, image transfers, cannibalization		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profitability: Entry costs, margin levels, return on investment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 5.3 Sample Discipline List Using Lilien and Rangaswamy's Criteria

5.3.1.5.3 Discipline and coordination checklist

As proposed in the research framework (see Figure 3.1) and discussed in Section 3.3.1, discipline lists and coordination lists can be merged into discipline-and-coordination lists which contain all steps of the two lists. Gawande points out that such combined lists have been used successfully in industry. The complete checklist version used in Stage two was therefore partly based on the coordination list (Figure 5.2) and the discipline list (Figure 5.3). The final version is shown in Figure 5.4.

11 STEPS TO FOLLOW	CHECK BOX WHEN COMPLETED
STEP 1 Introduce yourself to the team by saying your name and what you are particularly good at.	<input type="checkbox"/>
STEP 2 Select one team member who will be responsible for ensuring that all the steps on this checklist will be completed and boxes ticked. Person responsible sign here: _____	<input type="checkbox"/>
STEP 3 Take a look at the two page answer sheet so you understand your deliverables.	<input type="checkbox"/>
STEP 4 Ensure that everyone in your team understands that your team objective is to maximize profit.	<input type="checkbox"/>
STEP 5 Get an overview of the remaining steps of this checklist, before continuing with STEP 6. This will give you an idea about how to analyse the information in this game.	<input type="checkbox"/>
STEP 6 Read the three page case description and then get back to the checklist as soon as possible.	<input type="checkbox"/>

STEP 7 Now notify the researcher that you have reached STEP 7 and he will provide you with additional information needed to solve the case. Use this information as indicated by the following steps.					<input type="checkbox"/>
The criteria below will assist you in assessing vehicle classes. Consider each criterion in relation to each vehicle class and tick the box next to each criterion when you have done so. For some criteria you will find additional information in the three page description and booklets. Note also that there is an excel cost calculator available to you on your computer.					
Vehicle classes:	Economy	Sports	Minivan	Truck	Alternative energy
I. Size & Growth					
Size: Market potential, current market penetration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Growth: Past growth, forecasts of technology change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
II. Structural Characteristics					
Competition: Barriers to entry, barriers to exit, position of competitors, ability to retaliate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Segment saturation: Gaps in the market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protectability: Patentability of products, barriers to entry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental risk: Economic, political, and technological change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 8 Now select the most attractive vehicle class(es). Indicate selected vehicle classes by ticking the checkboxes. Take the black marker and cross out all vehicle classes that you have not selected; cross out the entire column in the dark grey section for those vehicles; you will no longer consider those vehicle classes from now on.					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 9 Assess whether your company can develop effective vehicles for the selected vehicle classes. If not, cross out those vehicle classes you cannot serve with the black marker in the grey section starting in this row; you will no longer consider those vehicle classes.					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The criteria listed below will assist you in assessing vehicle classes in terms of product-market fit. Consider each criterion in relation to each vehicle class and tick the box next to each criterion when you have done so. For some criteria you will find additional information in the three page description and booklets. Note also that there is an excel cost calculator available to you on your computer.					

Vehicle classes:	Economy	Sports	Minivan	Truck	Alternative energy
III. Product-Market Fit					
Fit: Coherence with company's strengths and image	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relationships with other segments: Synergy, cost interactions, image transfers, cannibalization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profitability: Entry costs, margin levels, return on investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 10 Now select the segments you can most effectively reach and serve. Indicate the final selected vehicle class by ticking the checkbox.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 11 Enter your final vehicle class choice and product specification on the ANSWER SHEET	<input type="checkbox"/>				

Figure 5.4 Discipline-and-coordination List Using Lilien and Rangaswamy's Criteria

5.3.1.6 Simulation environment

“A simulation game is an experiential environment which contains enough verisimilitude, or illusion of reality, to induce real world-like responses from participants” (Wells 1990, p. 5)

Management simulations have been used successfully for decades in academic research to investigate management decisions (Babb & Bohl 1975; Lee, Acito & Day 1987; Keys & Wolfe 1990). First evidence of their use for academic purposes can be traced back to late 1950s (Wells 1990). Although simulations simplify some of the real world scenarios, their aim is to demonstrate how various functions in a business, such as marketing, impact on the company's performance (Wells 1990; Interpretive Simulations n.d.).

The market simulation software *StratSimMarketing* (Interpretive Simulations n.d.) was chosen for this current study. Marketing strategy is at the core of all decisions made in

this simulation and the software is used by more than 50,000 students from 500 schools around the world each year (Interpretive Simulations n.d.).

StratsimMarketing has been used since the mid-1990s and replicates some of the key strategic decisions made in the automotive industry (Interpretive Simulations n.d.). The software offers a range of features, ranging from key targeting decisions to improving or buying new manufacturing facilities (Interpretive Simulations 2012). When using the computer version of this simulation, participants have access to most of those features.

The study's focus was on the targeting decision only (e.g. as opposed to infrastructure improvements to improve manufacturing capacity). Therefore, a paper version of the simulation was prepared. The *StratSim* software comes with a *StratsimMarketing* student manual (Interpretive Simulations 2012). This 149 page document was reduced to four pages focusing on the targeting aspect of the game only, and given to participants (see Appendix F). Participants also received key industry information, consisting of screenshots from the simulation software (see Appendix G). Instead of having access to the simulation software and inputting answers into a computer, participants solved the simulation tasks by answering 13 key questions on paper (see pages two and three in Appendix D). Those questions were identified by the researcher as the key targeting decisions in the simulation. Other decisions in the simulation software were held constant.

All teams in the study made strategic marketing decisions on behalf of the same automotive manufacturer *Amazing cars*, and competed against the same four automotive manufacturers, which were controlled by the researcher. All groups started from the same point in time in the simulation, with identical resources, in identical markets and

with identical competition. To compare decision outcomes of different teams in the study all competitor decisions were held constant. This enabled the researcher to compare the performance of different teams in the study. After all team answer sheets had been collected the researcher entered each teams' decisions into the simulation software (as indicated on answer sheets), computed the simulation output (see sample provided in Table 5.6), saved results, reset the simulation and entered next team's decision. This was done until all decisions had been computed.

Table 5.6 Sample Simulation Output

Performance Summary – Period 4				
	Per. 1	Per. 2	Per. 3	Per. 4
Sales (\$)	\$20,516.40	\$21,373.90	\$21,685.60	\$26,779.60
Sales (000's units)	1,207	1,257	1,275	1,565
Market Share (\$)	23.70%	23.60%	23.20%	26.00%
Market Share (units)	28.20%	28.30%	27.90%	31.00%
Net Income	\$1,780.40	\$1,730.70	\$1,634.80	\$879.70
Cum. Net Income	\$1,780.40	\$3,511.20	\$5,145.90	\$6,025.60
Stock Price	\$50.56	\$51.50	\$48.00	\$49.64
Market Value	\$21,487.00	\$21,885.50	\$20,400.10	\$21,097.10
Return on Sales	8.70%	8.10%	7.50%	3.30%
Return on Assets	16.10%	19.10%	20.90%	10.40%
Firm Preference	19.20%	19.30%	19.30%	21.40%
Dealer Rating	62	62	63	65
COGS	71.40%	72.00%	72.70%	78.30%
Capacity Utilization	95.20%	98.40%	105.60%	130.00%
Debt	\$7,018.00	\$3,349.00	\$541.00	\$0.00
Stock Issue/Purch. %	0.00%	0.00%	0.00%	0.00%
Note: Dollar amounts are in millions.				

5.3.1.7 Experiment

After reading the Participant Information Sheet provided and accepting the invitation to participate, students participating were instructed to read the game documents consisting of introductory information containing the objective of the game and information on the game incentive, one for each functional role (Appendix H).

There were three different roles in the experiment: Chief Executive Officer (CEO), Chief Marketing Officer (CMO), and Chief Technical Officer (CTO). Teams with no functional roles (conventional teams) were used for comparison. Incentives and goals varied depending on which role was assigned. If no roles were assigned, the winning team received \$300 where the primary objective was to increase the company's profits in the short run. Teams with functional roles had the same overall objective of increasing the company's profits in the short run, and goals specific for their roles were also implemented. This was done to generate self-interest in the outcome (Macmillan & Guth 1986) and increase the likelihood of team coordination problems. CEO's had the individual goal of maximizing profits in the first year of launching a new product, CMO's had the goal of improving the market share of the company in the first year of launching a new product (units sold multiplied by price per unit) and CTO's needed to keep the cost of manufacturing a new product as low as possible (cost of production added to development cost). Using mutually exclusive goals was done to make the team decision making more challenging and in turn increasing the need for team discussion (e.g. the goal of selling as many cars as possible and the goal of maximizing profits could be seen as mutually exclusive goals when low prices increase unit sales and but can simultaneously lower the profits). Individuals in functional teams received individual incentives of \$100 each for the best performing individual in each role.

Participants were then given the game description, answer sheets and one of the three checklists or no checklist (Appendix I). CTO's in functional teams were also given access to an Excel sheet cost calculator (see Appendix J for sample screenshots), a simple tool prepared for this experiment and calculated the rough cost of manufacturing vehicles in the simulation. Teams with no functions had to decide who operated the cost calculator.

The teams had 45 minutes to complete the task and answer the team answer sheet, plus five minutes to respond to the individual post-task questionnaire. After reading the game introduction, each team member received handbooks containing detailed industry information (see screenshots in Appendix G). If teams had no functional roles, all three members of each team received one copy of identical handbooks. To stimulate functional thinking, different handbooks were provided in groups where functional roles had been allocated. One handbook containing financial performance and competitor information for the CEO, one containing market research data for the CMO, and one containing manufacturing cost calculations for the CTO (labelled as Handbooks 1-3 in Appendix G).

5.3.1.8 Team answer sheet

The key outcome of the task was to select one vehicle class for targeting. To achieve this, teams had to make product design and promotional decisions.

In the first session, teams had to decide which of the five available vehicle classes they would enter (*economy, sports, minivan, truck or alternative energy*). This was changed in the second week of the experiment (*family, luxury, minivan, utility and alternative energy*). After deciding which type of vehicle to manufacture, teams had to provide

information on how they wanted to allocate the company's resources on six specific vehicle features (car size, engine size, interior, styling, safety, and quality features). Each added unit of product features added a predetermined amount to the total cost of manufacturing. Teams also had to set a retail price for the vehicle, determine how many vehicles to manufacture, and select promotion themes and set advertising and promotion budgets.

To make informed choices, participants had access to all competitors' product descriptions, market trends, and results from market research that indicates key product features for each product class that was relevant in designing the new product and choosing advertising themes.

5.3.1.9 Individual survey tool

At the end of the session, participants completed individual surveys measuring the perceived task difficulty, checklist use (control groups excepted), and team coordination difficulties.

The generalised sense of power measure scale was adapted from Anderson and Galinsky (2006), consisting of four items; "I can get people to listen to what I say", "my wishes do not carry much weight", "I can get others to do what I want" and "my ideas and opinions are often ignored". A seven point multi-item answer scale with the endpoints "strongly disagree" and "strongly agree" was used, consistent with Anderson and Galinsky (2006).

To identify how many criteria each team explored, each participant was asked to describe all criteria they applied when choosing which vehicle class to enter, explain the reasoning for choosing the attribute levels they chose (for interior, styling, safety &

quality), and justify the reasoning for the price that was determined. All of those questions were open-ended.

To control for automotive industry knowledge, four items were used, “my friends/relatives would describe me as an expert on cars”, “I know a great deal about cars”, “I know a lot about the differences between automotive companies” and “I watch TV programs on cars (specialty shows & races) and read a lot about cars”. A seven point multi-item answer scale, ranging from “strongly disagree” to “strongly agree”, was provided.

To assess how checklists were used in the study, participants were asked “how did you use the checklist for solving this case?”, where five answer options were given, “not at all”, “only in beginning”, “only in the end”, “only to start and at end” and “all the way through”. Furthermore, five items focusing on checklist use were added, “the checklist was difficult to apply to the case”, “the checklist was far too long”, “the checklist limited our creativity”, “the checklist improved our decision making” and “I would use such a checklist again on a similar task”. A seven point scale ranging from “not at all” to “very much so” was provided for these questions.

To assess team coordination, six items were developed and used: “We had difficulties getting started”, “Coordination of work distribution was difficult”, “It was clear to us how to assess vehicle classes”, “We ran out of time”, “We did not really depend on quantitative information for many of our decisions and had to guess” and “It was clear when to do what”. A seven point multi-item answer scale ranged from “not at all” to “very much so”.

To see whether checklists affected functional thinking, a manipulation check based on Hamilton and Biehal (2005) was implemented. This consisted of four items, “the simulation game encouraged me to think of my own responsibility in the game”, “the simulation encouraged me to think of the effect that my decision had on my team mates’ decisions”, “during the simulation game, I was focused on my own role” and “during the simulation game, a sense of ‘We’ was in the top of my mind”. A seven point multi-item agreement scale was provided, ranging from “not at all” to “very much so”, consistent with Hamilton and Biehal (2005).

Team conflict measures were based on scales developed by Rahim (1983), using a shorter 12 item version of his 24 item scale for measuring team conflict. The 12 item version consisted of the following items; “Team members helped each other solving the case”, “The members of this team got along well”, “We had high mutual respect of each other’s opinions”, “In our group, we had lots of bickering about who should do what job”, “There was difference of opinion among the team members”, “The members of my group were supportive of each other’s ideas”, “There were clashes between group members”, “There was friendliness among the group members”, “It was easy to talk openly to all members of this group”, “It was easy to ask advice from any member of this group”, “All members of our team contributed equally to the discussion”, “One team member clearly dominated the decisions taken”. A seven point scale, ranging from “strongly disagree” to “strongly agree” was used, consistent with Rahim’s (1983) original scale.

To assess team work quality, a scale developed by Hoegl and Gemünden (2001) was adapted. Eight items were used for this assessment, “Everyone on my team did their fair share of the work”, “No one in my team depended on other team members to do the

work for them”, “All the members on my team contributed equally to the work”, “All members of the team openly shared their information”, “I did most of the work”, “The members of my team vary widely in their areas of knowledge”, “The members of my team have a variety of different backgrounds”, “The members of my team have skills and abilities that complement each other”. A seven point scale from “strongly disagree” to “strongly agree” was provided.

A few measures were included to investigate how participants used the checklists and other support documents (e.g. the cost calculator). Four items were included where the importance of financial outcomes were assessed: “Our team clearly showed how the plans translate into financial results”, “All strategic decisions were clearly linked to financial outcomes”, “Marketing decisions were clearly linked to financial outcomes” and “Production and vehicle design decisions were clearly linked to financial outcomes”, using a seven point multi-item scale ranging from “not at all” to “very much so”.

Additionally, one item assessed whether the cost calculator had been used, using a forced binary scale (“No”, “Yes”). Participants were also asked in an open-ended question how many different vehicle classes they did investigate. This served as a screener question, as teams responding “none” or “0” would indicate that the answers were not properly prepared and would therefore not be suitable for analysis.

5.3.2 Data analysis

Data collected was paper based, with answers handwritten by participants. Team decisions were typed into the *StratSim* software by the researcher only after each experiment session was over. Then the simulation process was activated. Simulation

outputs generated by *StratSim* were then typed by the researcher into a Microsoft Excel spreadsheet.

Individual surveys were also paper based and answers typed into a Microsoft Excel spreadsheet. Open-ended questions were coded and typed into two separate spreadsheets by two research assistants. Both worked independently and were unaware of this double entry.

After all data had been entered, the three spreadsheets were merged into one file. The double entry files from the individual survey were first merged, and all data entry inconsistencies addressed, incomplete data were either double checked or removed. Then, the game results were added to the spreadsheet. The master file was then imported to SPSS 19.0 for Windows (IBM Corp. 2010) where the following statistical analysis were computed.

Two dependent variables were used to assess team performance: “failure” and “stock price”. The variable “failure” is a binary variable which takes the value 1 when the company’s net profit is negative (product fails in the market) and 0 otherwise. The *StratsSimMarketing* simulation runs in periods, where decisions made in period 1 may start to materialise as soon as in the following period (period 2), or later. This depends on the nature of the decisions that are made in each period. Changes to less significant decisions in the simulation, such as promotional activities, can already start to materialise in the period after decisions are made. More complex decisions, such as developing new vehicles, take longer to materialise. The net profit variable was calculated based on net income in period 4 of *StratsSimMarketing* which is the first period in which the targeting decision materialises in the simulation game outputs.

Company stock price in period 4 was used as a measure of the overall profit impact of the targeting decision (profit performance). This was also taken from the simulation game outputs. The stock price is a function of net income, sales, growth, dividends and future potential (Interpretive Simulations 2012) and therefore captures the expected long-term effect of the targeting decision in terms of a firm's stock price. This makes it an interesting measure as it reflects discounted future profitability as a result of the targeting decision.

Gawande (2009) claims that checklists aim to prevent failure from happening. He does not claim that checklist drive top performance towards an even better performance. Therefore a diminishing impact of checklists with increasing performance levels is expected. Thus, the logarithm of firm's stock price ($\ln(\text{stock price})$) is used.

To assess H1 (*Checklist use will increase the number of criteria considered*), three open-ended questions were used. Participants were asked to describe the criteria applied, and explain how both the attribute levels and price were determined. All answers were coded based on the segment assessment list proposed by Lilien and Rangaswamy (2004). This list contains nine items and if a participant mentioned one of the criteria on this list a score of "1" was given (as opposed to "0" for not mentioning). For example, "we looked at how big the target market was and whether there are too many others selling to this market". Here, "how big the target market is" indicates "size (market potential, current market penetration)" which is one of the nine criteria proposed by Lilien and Rangaswamy. Although "whether there are too many others" is a reference to a specific size (the number of competitors) here it refers to the criterion "competition (barriers to entry, barriers to exit, and position of competitors)". This coding was done for each individual. Two research assistants were responsible for the

coding of this part of the survey, where they coded all answers separately. After combining the two sets of coding files the researcher made the final assessment were coding was not consistent.

After coding, answers from all three team members were merged, still using the binary format. The outcome indicated how many of the nine criteria each team used, not how often team members mentioned using each criterion. To model the outcome, whether the use of checklists increases the number of decision criteria considered, the sample is divided into two groups; teams that received checklists and teams that did not receive checklists. The dependent variable “number of criteria” is ordinal and for the general linear model analysis an ordinal Probit model was applied.

The testing of H2 (*Checklist use will reduce coordination difficulties*) was similar to the testing of H1, where a binary variable was used (checklist use vs. no checklist). Teamwork coordination difficulties were measured in the individual survey using six items: “We had difficulties getting started”, “Coordination of work distribution was difficult”, “It was clear to us how to assess vehicle classes (reversed)”, “We ran out of time”, “We did not really depend on quantitative information for many of our decisions and had to guess”, “It was clear when to do what (reversed)”.

To test H3 (*Cross-functional teams inspect more criteria than conventional teams*), the sample was first split into two groups, cross-functional teams and conventional teams. A Probit model was used, where team structure is the grouping variable. Similarly, to test H4 (*Experienced teams inspect more criteria than newly formed teams*) the sample was split into two groups: experienced teams and inexperienced teams. A Probit model was also used for H4 with team experience as the grouping variable. To test H5 (A

higher number of criteria considered improve performance) and H6 (*Fewer coordination difficulties improve performance*), binary logistic models were used, one for the dependent variable “failure” (negative net profits) and the second test for the dependent variable “stock price” (profit performance measure).

Additionally, one open-ended question served as a screener question. Participants were asked how many vehicle classes were investigated. Answers were analysed and all who indicated that no classes had been investigated were flagged as potential outliers. In cases where all three members of a team indicated that no classes had been investigated answers were removed from the final dataset.

5.3.2.1 Mediation analysis

To test whether the number of criteria applied and coordination difficulties mediates the effect of checklist use on targeting performance, a bootstrapping approach was used. Baron and Kenny’s (1986) mediation approach is the most cited approach for mediation analysis in the literature (Zhao, Lynch & Chen 2010). According to Baron and Kenny’s (1986) approach, three test should be used, followed by the Sobel z -test to assess the significance of the indirect mediation path $a \times b$ (Figure 5.5).

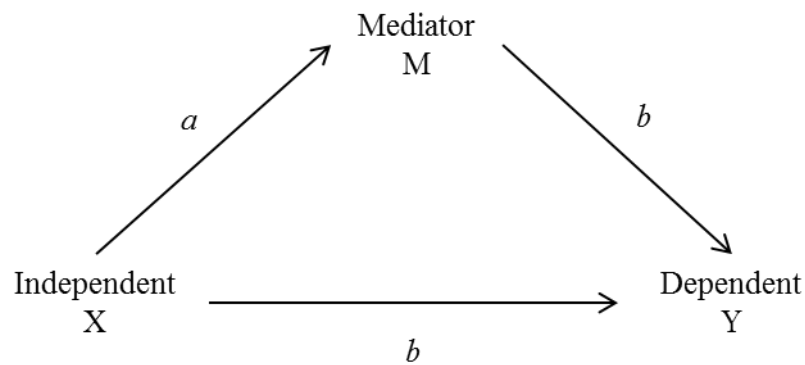


Figure 5.5 A Three-Variable Nonrecursive Causal Model (source: Zhao, Lynch & Chen 2010, p. 198)

Zhao, Lynch and Chen (2010) question Baron and Kenny's (1986) approach, and claim that a bootstrapping procedure developed by Preacher and Hayes (2004; 2008) is better suited for mediation analysis due to its statistical power. Zhao, Lynch and Chen (2010) also point out that using the three test plus the Sobel z -test approach as proposed by Baron and Kenny (1986) can result in misleading findings. According to one of their tests, mediation is only established if a regression of X on Y in Figure 5.5 shows a significant effect. Zhao, Lynch and Chen (2010) point out that this is not a necessary condition and the only important significant effect is the $a \times b$ path. As an alternative approach, Zhao, Lynch and Chen (2010) recommend using Preacher and Hayes (2008) bootstrapping method.

Preacher and Hayes (2004; 2008) developed a bootstrapping approach with bias-corrected 95 percent confidence estimates, including only one test (not three), where the bootstrapping test is almost always higher in predictive power than the Sobel z -test when assessing the indirect $a \times b$ path. This method is also recommended when testing two mediators simultaneously (Preacher & Hayes 2008), where Hayes (2013) recommends using a parallel multiple mediator model. In the parallel model used in the

current study there were two $a \times b$ paths, one through each of the two mediators; number of criteria and coordination difficulties. The two mediators linked the independent binary variable checklist (vs. no checklist) to each of the two performance measures. The model controlled for the other two independent variables in the study, team structure and team experience. The analysis was conducted PROCESS, a SPSS macro specially developed by Hayes (2013b) for this type of analysis.

5.4 Findings

The data analysis commenced with a comparison of the overall effect of checklist use and provided analysis of both the main effects, and also the interaction effects of the three independent variables, checklist type, team structure, and team experience. First the impact of checklist use on the number of targeting criteria used by student teams was analysed, followed by the impact of checklist use on coordination difficulties. How team structure affects the number of criteria investigated was then looked at and whether repeatedly working together as a team increased the number of criteria inspected. One of the hypotheses states that higher number of criteria inspected will improve the two dependent variables which are used to assess company performance. This effect was assessed and also whether coordination difficulties had the reverse effect on the same dependent variables. After investigating the group differences, interactions between different variables in the framework were explored in more encompassing models. Finally, the role of number of criteria and level of coordination difficulties as possible mediators of performance was explored.

5.4.1 Overall use of checklists (H1 & H2)

Testing of H1 (*Checklist use will increase the number of criteria considered*) revealed that the hypothesis could not be rejected ($\chi^2 = 10.3$, $df = 1$, $p < .01$). This means that the use of checklists did increase the number of criteria teams investigated. Teams that used checklists to support their decisions reported having explored 3.2 criteria on average, compared to 2.7 criteria on average for groups that were not given checklists. The average of 3.2 criteria was confirmed for both discipline checklist teams and coordination checklist teams.

Testing of H2 (*Checklist use will reduce coordination difficulties*) led to the rejection of the hypothesis ($F = 9.4$, $df = 1$, $p < .01$). Not only did checklists fail to significantly reduce coordination difficulties; they increased coordination difficulties instead. The average coordination difficulties score for teams that used checklists was 3.3, compared to 2.9 for teams that did not use checklists. The use of discipline checklists led to the highest level of coordination difficulties (3.4) which adds support to this argument.

5.4.2 Team structure and experience (H3 & H4)

H3 proposes that cross-functional teams inspect a higher number of criteria than conventional teams. The comparison was done by first dividing the sample into those that were allocated cross-functional roles (CEO, CMO and CTO) and those that were not allocated specific roles (conventional team structure). The analysis led to the conclusion that H3 could not be rejected; cross-functional teams explored 3.2 criteria on average compared with 2.9 criteria on average for conventional teams. The difference was only marginally higher ($\chi^2 = 2.9$, $df = 1$, $p < .1$).

H4, which states that experienced teams inspect more criteria than newly formed teams, was rejected ($\chi^2 = 0$, $df = 1$, n.s.).

5.4.3 Checklists and targeting performance (H5 & H6)

H5 states that a higher number of targeting criteria investigated will improve company performance. Using both stock price and failure as dependant variables in the linear model H5 was partially supported (see Table 5.7). The number of criteria investigated had a significantly ($p < .05$) positive effect on one of the performance measures: stock price. The number of criteria used did not, however, have a significant effect ($p > .1$) on the other performance measure, failure.

Table 5.7 General Linear Model – Results for ln(stock price) and Failure

Factors	ln(stock price) (Wald χ^2)	Profit Failure (Wald χ^2)
Intercept	5866.413***	4.051**
Number of Criteria	4.426**	2.361
Coordination Difficulties	6.267**	.226

* $p < .1$

** $p < .05$

*** $p < .01$

H6 states that fewer coordination difficulties improve performance. This hypothesis was only partially supported. Coordination difficulties had a significant effect on stock price ($p < .05$), but not on failure ($p > .1$).

Adding a control path to the analysis (direct impact of design factors on performance), the findings reported in Table 5.8 are similar to what has been reported in Table 5.7.

The use of checklists indirectly affected stock performance through the number of criteria used ($p < .0$) and coordination difficulties, but did not affect failure through the two mediators. This is similar to the findings provided in Table 5.7, where the path from number of criteria and coordination difficulties to stock price is significant, not the path to failure. However, in the model containing the control path (Table 5.8) there is a direct effect of checklist use on failure ($p < .05$). Using cross-functional structure is also found to have significant direct effect on stock price ($p < .01$).

Table 5.8 General Linear Model – Results for ln(stock price) and Failure with Control

Path

Factors	ln(stock price)	Profit Failure
	(Wald χ^2)	(Wald χ^2)
Intercept	4760.8***	6.612**
Checklist Use	.184	4.253**
Team Functional	4.595**	2.088
Team Experience	.013	1.539
Number of Criteria	3.163*	.933
Coordination Difficulties	4.773**	1.450

Reference group: No Checklist, Conventional Team, No Team Experience

* $p < .1$
 ** $p < .05$
 *** $p < .01$

5.4.4 Mediation effects (H7)

To test H7, whether the number of criteria applied and coordination difficulties mediates the effect of checklist usage on targeting performance, a bootstrap test was used as recommended by Preacher and Hayes (2008) when testing more than one mediator. The parallel multiple mediator model showed that checklist use directly influenced failure rates (number of criteria used: $a \times b = .044$, 95 percent confidence interval = $-.20$ to $.098$; coordination difficulties: $a \times b = .07$, 95 percent confidence interval = $-.058$ to $.24$). When the confidence interval includes the value 0, the indirect effect of the mediators is not significant and mediation hypothesis is rejected (Zhao, Lynch & Chen 2010).

In the relationship between checklists usage and firm stock price both the number of criteria applied ($a \times b = .009$, 95 percent confidence interval = .0005 to .0239) and coordination difficulties ($a \times b = .011$, 95 percent CI = -.0273 to -.0021) do not contain the value 0, indicating that the indirect effect is significant and mediation is established. To identify the type of mediation, path c needs to be investigated (the direct effect of the independent variable on the dependent, see Figure 5.1) as it will determine the type of mediation (Zhao, Lynch & Chen 2010). Here path c , the total effect of the independent variable on the dependent variable, was not significant ($p > .1$) indicating an indirect-only mediation (see Figure 5.6).

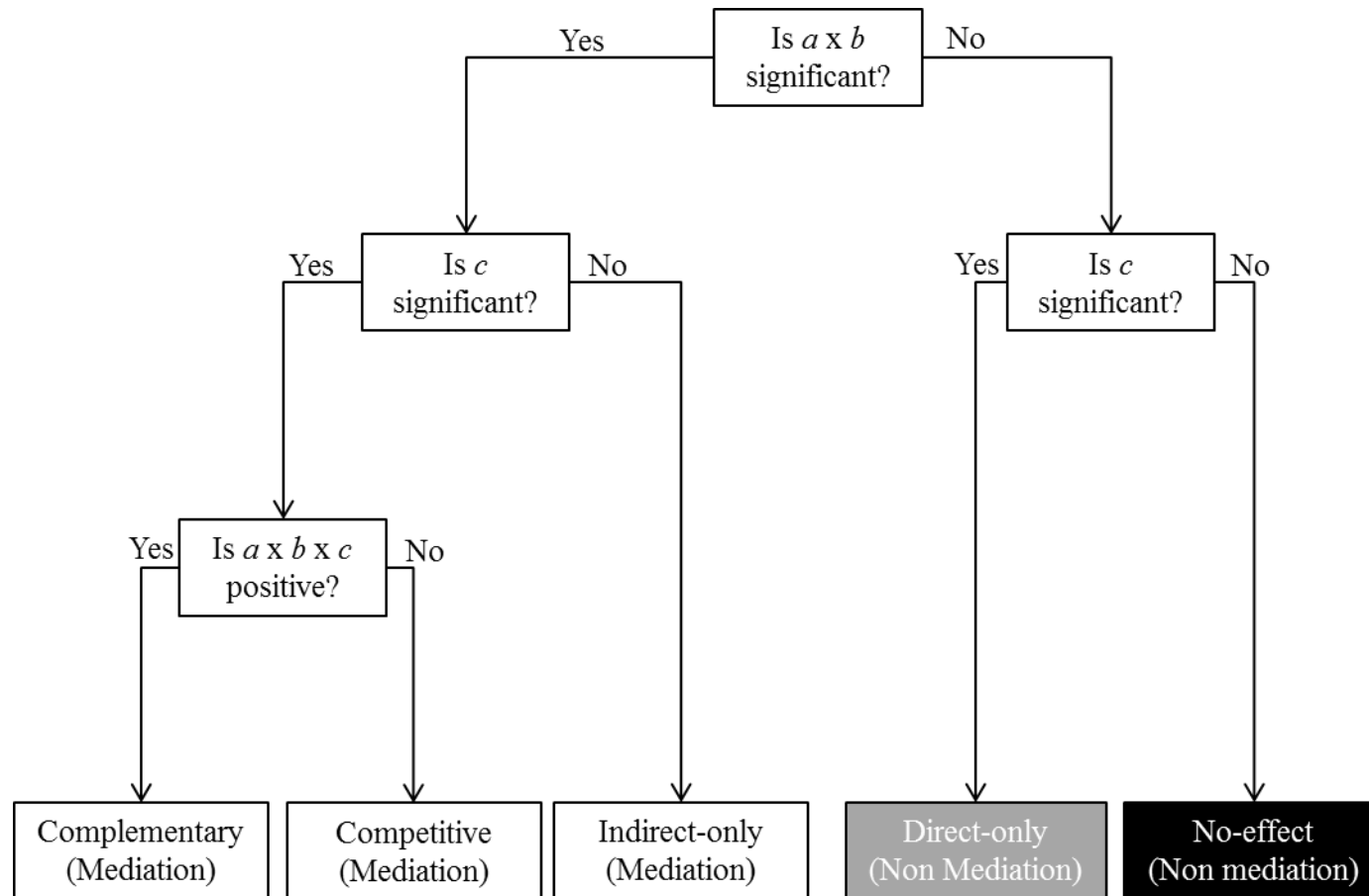


Figure 5.6 Establishing Mediation and Classifying Type (source: Zhao, Lynch & Chen 2010, p. 201)

5.4.5 Other interactions between independent variables

The two mediators from the research framework (number of criteria inspected and team coordination) were used as dependent variables in the following analysis. The design factors were the independent variables from the framework (checklist, team structure and team experience and their interactions). Significant interactions were found between the independent variables checklists and team experience, as teams that used checklists investigated more criteria compared to control groups in the first round of the experiment (Table 5.9). Teams using checklists considered a slightly lower number of criteria in the second round of the experiment, compared to the first round. The opposite happened with control groups, as they considered higher number in the second round compared to the first.

Table 5.9 General Linear Model – Results for Number of Criteria and Coordination Difficulties

Factors	Number of Criteria	Coordination Difficulties
	Wald-χ^2 (Probit)	Wald-χ^2 (linear)
Discipline list	2.82*	34.19**
Coordination list	1.41	.18
Discipline-and-coordination list	.16	1.15
Cross-functional Team	.01	1.00
Team Experience	.36	121.53**
Cross-functional Team x Discipline	7.49***	3.02*
Cross-functional Team x Coordination list	.26	1.44
Cross-functional Team x Discipline-and-coordination list	.85	.47
Cross-functional Team x Team Experience	3.20*	1.75
Cross-functional Team x Team Experience x Discipline-and-coordination list	2.16	3.12
Team Experience x Discipline list	4.07**	1.23
Team Experience x Coordination list	4.35**	.20
Team Experience x Discipline-and-coordination list	.01	.13
Reference Groups: No Checklist (i.e., Control Group), Conventional Team, No Team Experience		
* $p < .1$		
** $p < .05$		
*** $p < .01$		

Table 5.9 further reports a significant interaction between team structure (cross-functional teams) and discipline checklists on the number of criteria used. The use of discipline lists significantly increased the number of criteria investigated (3.4 criteria on average), only when used in cross-functional teams but not when used in conventional teams (2.9 criteria investigated on average). To argue against the use of discipline lists,

marginal significant interaction was found between discipline lists and cross-functional teams on coordination difficulties. Discipline lists may therefore have negative impact on teamwork, although more criteria are being investigated.

Also reported in Table 5.9 are significant interactions between team structure and experience on the number of criteria investigated. Similar to the relationship between checklist use and team experience, cross-functional teams applied more criteria in the first round (3.4), compared to the second round (2.9). The opposite happened in teams with conventional structure where the number of criteria investigated in the second round was higher (3.1) than in the first round (2.7).

Finding the most successful combination of independent variables is important from a practical perspective. Cross-functional teams using discipline-and-coordination checklists performed better than other teams, where none the cross-functional teams using discipline-and-coordination checklists failed in developing successful products (as measured with the dependent binary variable 'failure', 1 for negative net profit, 0 for positive net profit). Cross-functional teams with coordination checklists failed in 4.8 percent of cases, and cross-functional teams with discipline checklists failed in 5.7 percent of the cases. Control groups with conventional structure performed the worst and failed in 17.5 percent of the cases. Slightly better was the performance of cross-functional control groups (failure rate of 11.8 percent). This provides strong evidence for using cross-functional teams, as argued previously in the literature (i.e. Eisenhardt, Kahwajy & Bourgeois 1997; Slotegraaf & Atuahene-Gima 2011).

The most successful combination discussed above (cross-functional teams with discipline-and-coordination checklist) also outperforms other combinations when long

term financial performance is assessed by measuring stock price. This successful combination of checklist type and team structure, compared with cross-functional teams not using checklists, results – on average – in a 3.3 percent stock price increase and a 12 percent reduction in failure.

5.5 Summary of main findings

Checklist use increases the number of target segment selection criteria considered by a team. Using checklists reduces failure. Using the discipline-and-coordination checklist in cross-functional teams leads to the lowest failure rate and the highest stock prices for companies. Coordination difficulties occur with discipline checklists and coordination difficulties diminish performance. These findings are in contradiction to previous results from previous work as summarised by Gawande (2009). The overall effect of checklist use on the quality of the targeting decision (measured by a firm's stock price as a function of the targeting decision) is mediated by the targeting process (number of criteria applied and coordination difficulties). The results and their implications will be further discussed in the following chapter.

6 Conclusions, limitations and recommendations

Checklists have been used successfully for decades to avoid failure in aviation, and have recently been developed and tested in healthcare where they have delivered promising results (Gawande 2009). In marketing, textbooks suggest using checklists when selecting target markets. Yet, marketing checklists are not optimised using business simulators similar to aviation where aircraft pilots systematically fine tune and carefully design each step of their checklists using flight simulators. Marketing textbook authors do not even agree on the key criteria to be considered when making a targeting decision, one of the most crucial strategic marketing decisions. To date, little systematic research within the marketing discipline has been carried out on the usefulness and nature of checklists. The present study grew out of the practical problem experienced by marketing managers when selecting segments for targeting, and focused on six research objectives: (1) to understand how targeting decisions are currently made in practice, (2) to investigate whether following a structured approach for assessing and selecting target segments is associated with better performance, (3) to understand whether using checklists for marketing decisions improves company performance, (4) to understand how checklists for targeting decisions should be designed, (5) to understand if there are negative effects of checklist use on checklist users' communication, and (6) to understand how checklist use interacts with different team structures.

As this was the first Marketing related study about targeting checklists, two stages were needed: a marketing manager survey and a student experiment. After a review of the literature, it could not be concluded whether marketing managers were using any of the textbook checklists or not. Additionally, it could not be determined if such a process would improve marketing decisions. The literature review did, however, reveal that

managers needed guidance for making targeting decisions (Dibb 1999; Dolnicar & Lazarevski 2009). Based on responses from 223 US marketing managers in Stage One, it was concluded that most companies perform all steps of the S-T-P targeting process (Kotler 1984) which is recommended in the literature. This was mostly done using cross-functional teams. The finding is consistent with earlier findings indicating the widely spread use of cross-functional teams (Hise 1965) and increasing popularity of using this structure (Olson, Walker & Ruekert 1995). In Stage One (see Section 4.4.1) the cross-functional team structure was found to be the dominant structure, where 85 percent of respondents stated that targeting decisions are made by cross-functional teams with members representing key functions of the company. In addition, the study found that team targeting performance is commonly assessed based on function specific measures. This finding raises concerns as different goals and incentives in teams do have the potential to negatively affect the project outcome (Thompson 1967; Macmillan & Guth 1986).

The marketing literature does not reveal whether structured approaches are currently being followed in practice for selecting target markets, or whether structured approaches are beneficial for this purpose. Here in the context of marketing, Stage One revealed that the use of structured procedures such as checklists was positively related to segmentation (+26.7 percent), innovation (+26.1 percent), and business (+6.8 percent) performance. This finding is consistent with healthcare, construction and aviation where structured approaches have been found to improve team performance (Gawande et al. 2010; Chang, Du & Shen 2012; Gordon, Mendenhall & O'Connor 2012). The findings also report that managers like the idea of using checklists for targeting decisions; 84 percent would want their managers to use targeting checklists if they were the company

owners. This finding is consistent with findings from healthcare where checklist users are positive towards checklists because they improve both personnel collaboration and staff safety climate ('Preflight Checklist' Builds Safety Culture, Reduces Nurse Turnover' 2003; Makary et al. 2007).

Checklists are a decision support tool implemented so failure can be avoided when making important decisions (Gawande 2009). Stage One confirmed this view in marketing. Seventy eight percent agreed that the use of checklists would be useful in their company to ensure important factors are not overseen. The study confirms findings from healthcare where hospital staff has reported very positive attitudes toward checklists use (Gawande 2009).

In terms of negative consequences of checklist use, about one third of participants in this current study expressed concerns about the increase in bureaucracy, 39 percent thought it would limit creativity, and 40 percent felt that checklists would not work because each situation is different. This supports an issue raised by Howard (2010) who was concerned that checklists may add bureaucracy and limit creativity.

Of 17 targeting checklists from literature that were compared in the present study, Lilien and Rangaswamy's (2004) targeting checklist was perceived to be the most useful checklist and the most preferred by the managers. This finding is used as a foundation for checklist development and testing in Stage Two.

In his book, Gawande (2009) showed how difficult and crucial checklist development is and discusses two types of checklists: discipline and coordination checklists. Building on Gawande (2009) and Fox's (2010) taxonomy of checklists three different checklists were developed: (1) a discipline checklist aimed at showing users what to do when

assessing segments for targeting, (2) a coordination checklist which instructed users how to go about solving tasks and coordinating activities, and (3) discipline-and-coordination checklist which was a combination of (1) and (2). The aims of Stage Two were to test the causal influence of the three different checklists on the targeting process and performance of cross-functional and conventional teams. Seven hypotheses were tested and the results are summarised in Table 6.1. Five hypotheses were supported, or partly supported, and two hypotheses were not supported (H2 and H4).

Table 6.1 Results of Hypothesis Tests

Research hypothesis	Result
H1: Checklist use will increase the number of criteria considered.	Not rejected
H2: Checklist use will reduce coordination difficulties.	Rejected
H3: Cross-functional teams inspect more criteria than conventional teams.	Not rejected
H4: Experienced teams inspect more criteria than newly formed teams.	Rejected
H5: A higher number of criteria considered improve performance.	Partially supported
H6: Fewer coordination difficulties improve performance.	Partially supported
H7: Checklist use, cross-functional team structure, and greater team experience improve team performance, mediated by the number of criteria applied and coordination difficulties.	Not rejected

The results support the first hypothesis which states that checklist use will increase the number of criteria considered. This means that teams using checklist containing segment assessment criteria investigate more checklist criteria. This supports previous

claims that the use of checklists forces users to examine all relevant information (Sibbald, de Bruin & van Merriënboer 2013).

Hypothesis two states that using checklists will reduce coordination difficulties in teams, similar to findings from Lingard et al. (2008) who demonstrated this effect in healthcare. The results of Stage Two indicate that this is not always the case; in fact checklist use does pose challenges by increasing team coordination difficulties. This may limit checklist usefulness as increased team coordination difficulties translate into lower stock prices in the simulation. The results clearly indicate that coordination difficulties are mainly driven by discipline checklists. The coordination difficulties could be a consequence of making teams aware about all relevant aspects that they need to consider when making the decision, which increases information load and time pressure. The simulation task was not easy and time to solve the task was very limited. This may have added to the coordination difficulties, as some coordination tasks were time consuming. Discipline checklists show users how much needs to be done to assess segments. This could have increased stress, as time to complete the game was limited. More stress may then have led to higher coordination difficulties. Unlike the current study, Lingard et al. (2008) only assessed the impact of using a coordination list, but did not compare different types of checklists.

On the basis of previous research and increasing popularity of using cross-functional teams in organisations, it was hypothesised that cross-functional teams would inspect more criteria than conventional teams. Findings from Stage Two show that the impact of checklists on all targeting performance measures is positive when operated by cross-functional teams. The discipline-and-coordination checklist operated by teams with assigned functional roles leads to the lowest failure rate and the highest stock prices for

the companies. The findings of the current study are consistent with other research which have found that cross-functional teams obtain more project-related information (Pinto & Pinto 1990) and are more concerned about how comprehensive their decisions are (Talaular & Grundei 2005).

It was therefore hypothesised that experienced teams using checklists would inspect more criteria than newly formed teams. This hypothesis was not supported. This result was not expected given that previous research findings suggest that the experience of working together in a team improves performance (Huckman, Staats & Upton 2009). Control groups considered higher number of criteria in the second round compared to the first, while teams using checklists considered a slightly lower number of criteria in the second round. Thus, the difference between the two groups (checklist and control group) erodes over time. This finding is consistent with the findings of Reagans, Argote, and Brooks (2005) who claim that the experience of working together facilitates more open discussion and improved willingness to share information. Team members also often develop special ways of communicating and anticipate each other's actions which can improve team coordination (Weber & Camerer 2003). The knowledge of who knows what in a team, and who can do what in a team, is important when team member roles are not predefined (Liang, Moreland & Argote 1995; Faraj & Sproull 2000). Reagans, Argote and Brooks (2005) find that experience is one of the key factors in improving this knowledge and that experience could, therefore, lead to faster project completion. Members of conventional teams with no predefined roles may have learned who can do what with repeated teamwork, allowing more time to investigate more criteria in the second round. Cross-functional teams in the current study had predefined roles and responsibilities and would not have benefitted to the same extent. As the

number of criteria investigated by cross-functional teams eroded over time, clearly defined roles could be important to ensure that members of cross-functional teams work consistently over time.

Similarly to findings reported in the medical discipline (see Table 1.1) there is a direct effect of checklist usage on failure rates. Contrary to expectations, this study did not provide full support for the hypothesis which states that higher number of criteria applied improves performance. The number of criteria investigated has a significant positive effect on the measure for the long term effect of the targeting decision (measured by stock price), but does not have significant effect on the performance measure, failure (negative net profit). Similarly, the hypothesis which states that fewer coordination difficulties improve performance was partially supported. Coordination difficulties have a significant effect on stock price, but not on failure. The measure for the long term effect of the targeting decision (measured by stock price), however, indicates that the effect of checklist usage is mediated by the targeting process (number of criteria applied and coordination difficulties). The results of Stage Two show that checklist usage leads to an increase in the number of criteria applied for targeting which in turn translates into higher firm performance.

Overall, this study shows that the use of a formal process such as checklists can increase company performance. This finding is based on insights from Stage One and experimental testing in Stage Two. Stage Two further provided preliminary support to the contention that a checklist consisting of both discipline specific steps that tell you what to do, and interactive how-to-do steps for improving team communication used by cross-functional teams is an important step to increasing the effectiveness of the targeting decision.

6.1 Implications of the study

6.1.1 Theoretical implications

This study is the first study to experimentally test the value of checklists in marketing, and the first checklist study to vary team roles and checklist types. Key theoretical contributions from this study include that checklist performance is related to team structure and learning effects in teams which work together over a period of time. Therefore, these factors should be carefully looked at when designing or optimising checklists for specific marketing decisions. The impact of different team structure has been well documented in literature, where team structure has been found to be a contributor to both innovation and performance (Hoegl & Gemünden 2001) and is generally thought to be fundamental for the success of new product development (Atuahene-Gima 2007). Increasingly complex market environment was identified as one of the main reasons why cross-functional team structure would provide an advantage, as different views would result in more diverse range of business solutions (Northcraft 1995; Kettley & Hirsh 2000). To date, decision support has been thought to improve communication in teams (Griffin and Hauser 1992) and checklists mentioned as a particularly good support tool for this purpose (Gawande 2009). Although Gawande (2009) provides evidence for the usefulness of checklist in a team environment, the impact of using different checklists – and their impact in the context of marketing – is unclear in literature. The performance of teams with cross-functional roles in the current study underscores the importance of implementing cross-functional team structure and incentives in teamwork, and is consistent with Eisenhardt, Kahawajy and Bourgeois' (1997) argument for cross-functional team structure. This finding also

supports recent findings related to the important role of the marketing department within firms (Verhoef et al. 2011).

Marketing textbooks reviewed for this study hypothesised about the potential benefit of using discipline “checklists” for target market selection decisions. One of the research aims was to understand how checklists for targeting decisions should be designed and whether coordination steps would improve performance, similar to what is evident in healthcare. Literature suggests that the sequencing and number of actions could affect the outcome (Janis & Mann 1977; Berg & Pitts 1979). Furthermore, Lenox, Hahn and Lewis’ (1999) study showed that checklists could improve cohesion and information exchange in teams. According to Gawande (2009) discipline checklist have the potential to improve team performance. This was investigated in the experimental study where results indicate that discipline checklists do in fact cause more team coordination difficulties than other lists. However, discipline-and-coordination checklists are promising tools to avoid very poor results (failure). These findings enhance our understanding of checklist design, as very little has been written on how to develop checklists (Weiser et al. 2010) apart from Gawande et al. (2010) “Checklist for checklists”, which was based on anecdotal evidence but not subjected to empirical investigation.

A simple and easy to use targeting checklist also strengthens the link between theory and practice. Management is reluctant to change strategy based on segmentation recommendation as managers often see the implementation of solutions to be too complex operationally (Quinn 2009), and they often face a tension between what is theoretically desirable and what is perceived as managerially possible (Bonoma & Shapiro 1984). Most current evidence suggests managers operate in an increasingly

complex environment and are often unsure how to make key decisions (Adobe Systems Incorporated 2014). An easy to use targeting checklist could get managers one step closer to applying theory in practice. Taken together, these findings suggest that future marketing textbooks should incorporate coordination tasks and also stress the importance of using cross-functional teams when solving complex tasks. In the experiment, checklist usage significantly increased the number of inspected decision criteria when used by cross-functional teams, which in turn, prevented new product failure in the simulated market. The present study also makes a noteworthy contribution to the assessment of segment attractiveness. Finding from an extensive literature search shows that there many different lists available for assessing segments (see Section 2.3), but none have been identified as either the optimal, or even preferred in practice. The evidence from this study suggests that Lilien and Rangaswamy's (2004) list is preferred by managers. This should be taken into consideration in future textbooks.

6.1.2 Practical implications

Marketing managers have a responsibility to their shareholders to ensure that key decisions are based on solid reasoning, not gut feeling. However, after conducting a review of the segmentation literature it appears that many managers have been relying on gut feeling when making strategic decisions (Dibb 1999) and continue to do so (Adobe Systems Incorporated 2014). Findings from Stage One show that managers should not rely on gut feeling as they benefit from using more formal processes such as checklists when making strategic decisions. The results show that using checklists or other similar formal processes is associated with higher performance. The student experiment indicates that this is in fact a causal relationship. From a managerial perspective, the findings highlight the importance of installing discipline-and-

coordination checklists for targeting and making sure that they are operated by cross-functional teams representing key company functions.

Gawande (2009) warns us that the implementation of checklists can be a challenging task as some may see checklists as unnecessary bureaucracy. Although checklists objectively improved performance in Stage Two, using discipline checklists did result in more coordination difficulties. The evidence from this study suggests that adding team coordination steps in a checklist is a potential way of overcoming this problem.

Cross-functional team structure is the dominant team structure and strongly interacts with checklist benefits. The manager survey shows that about 85 percent of teams in companies are cross-functional teams, where team members are sourced from different functions and work together with the marketing function. Findings from the experiment in Stage Two indicate that checklists work better in cross-functional settings, making this a suitable situation for checklist implementation in practice. The findings from Stage Two have also confirmed the findings of Souder (1988) and Slotegraaf and Atuahene-Gima (2011) which claimed that keeping teams unchanged throughout projects contributes to improved performance. Team experience in Stage Two led to reduced coordination difficulties in teams. This is an important finding for managers because of the negative impact coordination difficulties can have on performance. Seen from a managerial perspective, this finding should be taken seriously when planning teamwork projects in organisations. This indicates that there is a good potential for improvements for organisations that frequently change the team structure.

6.2 Limitations of the study

The limitations of this study include the assessment criteria from literature which managers compared in Stage One (Chapter 4). As discussed in Section 2.3 many different criteria were proposed in the literature, but only a subset of criteria were used in this study. This was done as there is no optimal or best list of criteria available. Other lists of criteria, not included in this study, could have performed better than the criteria from Lilien and Rangaswamy's (2004) textbook. The coordination checklist was based on the "Checklist for developing checklist" (Gawande et al. 2010), anecdotal evidence and series of pre-tests. Other combinations of checklist items may have had different impact on the outcome, making different forms of coordination checklists an attractive avenue for future research.

Due to the exploratory nature of the experiment in Stage Two, the sample used was intentionally limited to undergraduate students. Even though Remus (1986) concluded that students and managers made similar decisions in a simulated environment, there are others who argue that using students does come with challenges that can limit the external validity of research findings (Chanchai & Young 2008; Canri, Steven & Carmelita 2011). Using managers was not possible because of the large number of participants needed for this investigation.

Various methodologies have been proposed for evaluating targeting alternatives, such as matrices and scoring methods (Lilien & Rangaswamy 2004), House-of-Quality (Hauser & Clausing 1988) and Montoya-Weiss and Calantone's (1999) multistage methodology. These more complex activities could be integrated into advanced targeting checklists to improve targeting success.

Very little is known about the order of items used in the checklists, this may have impacted the final decision. In the same vain, checklists only describe tasks that should be done. Certain errors cannot easily be avoided using step-by-step checklists. Including a “don’t do” criterion could help to avoid such errors. Furthermore, the targeting decisions are only as good as the segmentation analysis that precedes them. It is unclear what impact of the segmentation step of the whole process has on the success of targeting using checklists.

Another limitation is the actual adoption or refusal rate of checklists. The impact of the checklist design on adoption and refusal needs to be assessed in future studies. It needs to be investigated whether a higher refusal rate is mediated through variables such as perceived added bureaucracy. Finally, the checklists were only assessed using one simulation environment. The use of each checklist criterion depends on the calibration of the market simulation model and using a different simulation may have led to different results.

6.3 Recommendations for future research

The topic of checklists has been much discussed in healthcare in the past five years. This has not been the same in marketing, as top marketing journals have not covered the topic. As checklists are an under-researched topic in marketing, several interesting avenues for checklist research arise from this study.

Based on managers’ preference for different assessment criteria from literature, the optimal discipline checklist should contain 16 items. The study only investigated a subset of criteria, all of which varied substantially in length. Future research could investigate which criterion should be included in an optimal list, keeping in mind that

the overall checklist length should not contain more than 16 criteria. These criteria only list tasks that should be done, they do not list what should not be done. Future research could investigate what the consequences are of including tasks that should not be done, or even pure “not-to-do checklists”. Similarly, the order of task may change the outcome. Future studies could investigate not only which tasks should be included in the list of 16, but also in which order they should appear.

This study did not investigate how or why some experts may refuse to use checklists. High refusal rates must be one of the key concerns for those planning to implement checklists. Investigating the impact of checklist design on refusal should be assessed in future studies, as well as whether refusal rates are mediated by variables such as perceived added bureaucracy or perceived limitations on spontaneity and imagination.

It would also be interesting to investigate different organisational roles. Cross-functional teams can consist of members from any functional unit, and different group composition may alter the effectiveness checklists have. Similarly, using a different cohort such as actual managers may provide interesting insights.

This study demonstrated how checklists have the potential to aid managers when selecting target markets. Seeing how checklists perform in other complex areas of marketing would be interesting, such as in selling, site location decisions or campaign management. Business simulations studies should in future also include market dynamics and different firm positioning strategies (‘Market Leader’, ‘Innovation Leader’) and the usefulness of checklists. It is expected that strong positions may lead to biased decision making where important checks are not executed. Finally, future research should also investigate the different coordination steps used. In this study

coordination activities were based on pre-tests and anecdotal evidence. The usefulness of coordination checklists may potentially be improved even further by adding either more or less complex coordination activities. Further improving the checklists under investigation in this study could be of great use for many, as history has shown that people are prone to making mistakes.

7 References

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APPENDIX A - MANAGER SURVEY INSTRUMENT

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Thank you for agreeing to participate in this online survey. First of all we would like to ask you a few questions to make sure we have a good cross section of the community.

Your responses are strictly confidential; they are used for research purposes only.

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Please indicate your gender:

- ☐ Male
☐ Female

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How old are you?
 Years old

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Are you currently employed?

☐ No
☐ Yes

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The company you work for employs...

☐

 Fewer than 100 staff members

☐

 Between 100 and 199 staff members

☐

 Between 200 and 299 staff members☐

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The company you work for is a

☐

 Not for profit company

☐

 A for profit company

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To which extent are your company's revenues generated from addressing the whole market versus specific market segments?

Whole marketSpecific segments only

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Part 1

Selecting target market segments in your company

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To which extent does your company follow a cost versus a differentiation strategy?

Cost LeadershipDifferentiation Strategy

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To which extent are your company's revenues generated from addressing the whole market versus specific market segments?

Whole marketSpecific segments only

Next

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How strongly do you agree with the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Our company has a clear process to determine how segments are selected	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our company uses clearly defined criteria to select segments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our company uses a checklist to select segments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our company uses inter-functional tools like the House-of-quality to assess segments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our company segments the market for the purpose of better understanding customer needs and wants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our company targets one or more specific segments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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If your company uses a pre-specified process of any kind to select target segments, which of the following best described the nature of this process?

- ☐ No, in our company **no predefined process** is used to select target segments.
- ☐ **A policy**
A policy is a principle to guide decisions and achieve rational outcomes. A policy is an intent, it is not a procedure or protocol.
- ☐ **A guideline**
A guideline is a statement by which to determine a course of action. A guideline aims to streamline processes according to a set routine or sound practice. Using a guideline is not mandatory.
- ☐ **A checklist**
A checklist is a tool developed to reduce failure by compensating for potential limits of human memory and attention. It helps to ensure consistency and completeness in carrying out a task. Using a checklist is mandatory.
- ☐ **A protocol**
A protocol is a tool developed to standardize an approach to ensure successful replication by other people or at a later point in time. Protocols often include information on the calculation of results and reporting standards, including statistical analysis and rules for predefining and documenting excluded data to avoid bias. Using a protocol is mandatory.
- ☐ **A schedule**
A schedule consists of a list of a project's terminal elements with intended start and finish dates. Terminal elements are the lowest element in a schedule, which is not further subdivided. Those items are often estimated in terms of resource requirements, budget and duration, linked by dependencies and scheduled events. Using a schedule is mandatory.
- ☐ **A procedure**
A Procedure is designed to describe Who, What, Where, When, and Why by means of establishing corporate accountability in support of the implementation of a "policy". The "How" is further documented by each organizational unit in the form of "Work Instructions" which aims to further support a procedure by providing greater detail through work instruction which are a set of actions which have to be executed in the same manner in order to achieve intended results under the same circumstances. Using a procedure is mandatory.
- ☐ Yes, we do have a **predefined process** but none of those listed above describe it well.

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Can you please briefly outline the **process of assessing segment attractiveness** in your company?

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Can you please briefly describe the **criteria employed to assess segment attractiveness** in your company?

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Are segmentation and targeting decisions in your company based on empirical data, such as scanner data, survey data, internal customer data etc. ?

- ☐ No
☐ Yes

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For the following steps which can be part of a market segmentation process, please indicate whether your company undertakes them and who has responsibility for them.

Does your company do this?

	No	Yes
Set long-term corporate objectives	<input type="radio"/>	<input type="radio"/>
Collected data for segmentation analysis	<input type="radio"/>	<input type="radio"/>
Analyse data	<input type="radio"/>	<input type="radio"/>
Define variables used for the segmentation	<input type="radio"/>	<input type="radio"/>
Assess segment attractiveness	<input type="radio"/>	<input type="radio"/>
Select segment(s) for targeting	<input type="radio"/>	<input type="radio"/>
Define product positioning	<input type="radio"/>	<input type="radio"/>

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Do you outsource this task or do it internally?

	We outsource	We do this in-house
Collected data for segmentation analysis	<input type="radio"/>	<input type="radio"/>
Analyse data	<input type="radio"/>	<input type="radio"/>
Define variables used for the segmentation	<input type="radio"/>	<input type="radio"/>
Assess segment attractiveness	<input type="radio"/>	<input type="radio"/>
Select segment(s) for targeting	<input type="radio"/>	<input type="radio"/>

Next

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0%  100%

Which unit in your organisation is responsible?

Collected data for segmentation analysis	<input type="text"/>
Define variables used for the segmentation	<input type="text"/>
Select segment(s) for targeting	<input type="text"/>

Next

During the survey, please do not use your browser's "Forward" and "Back" buttons.
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Part 2

Usefulness of proposed segment assessment criteria

Next

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Imagine that your market research department can provide any information you may need about market segments (and cost would not be an issue), **which criteria would you use to select the best segment to target?**

1	<input type="text"/>
2	<input type="text"/>
3	<input type="text"/>
4	<input type="text"/>
5	<input type="text"/>
6	<input type="text"/>
7	<input type="text"/>
8	<input type="text"/>
9	<input type="text"/>
10	<input type="text"/>

Next

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You will now see different criteria which have been recommended in the past to select the best target segment. For each criterion you will be asked to assess how easy you think it would be to use, how often it is used in your company, how important it is to find the best target segment and how clear it is to you.

How easy do you think it would be to use this criterion based on information provided from your market research department?

	Very difficult	Difficult	A bit tricky	Easy	Very easy
Parsimony: Although having a large number of segments sounds appealing, because you can capture most of the differences between customers, it is expensive and inefficient to pursue too many segments. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Size: The segments worthy of being targeted must be of a certain size. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Segment's growth rate: A marketing manager might prefer growth, indicating future revenues, over current size. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Potential competitive position: You might choose to ignore a lucrative segment if a competitor is well entrenched or if you decide that you cannot offer a product that has a competitive advantage over what is already being offered.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sufficient segment size: It is clear that segmenting the market into too many groups results in some that are too small to be economically viable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Targetable: It is also vital that segments are targetable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Measurable: The segment characteristics must be measurable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0%  100%

How frequently is this criterion considered when target segments are selected in your company?

	Never	Rarely	Sometimes	Often	Always
Parsimony: Although having a large number of segments sounds appealing, because you can capture most of the differences between customers, it is expensive and inefficient to pursue too many segments. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Size: The segments worthy of being targeted must be of a certain size. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Segment's growth rate: A marketing manager might prefer growth, indicating future revenues, over current size. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potential competitive position: You might choose to ignore a lucrative segment if a competitor is well entrenched or if you decide that you cannot offer a product that has a competitive advantage over what is already being offered.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sufficient segment size: It is clear that segmenting the market into too many groups results in some that are too small to be economically viable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Targetable: It is also vital that segments are targetable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Measurable: The segment characteristics must be measurable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0% 100%

Is this an important criterion for finding the best segment?

	Not important	Somewhat important	Important	Very important	Extremely important
Parsimony: Although having a large number of segments sounds appealing, because you can capture most of the differences between customers, it is expensive and inefficient to pursue too many segments. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Size: The segments worthy of being targeted must be of a certain size. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Segment's growth rate: A marketing manager might prefer growth, indicating future revenues, over current size. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potential competitive position: You might choose to ignore a lucrative segment if a competitor is well entrenched or if you decide that you cannot offer a product that has a competitive advantage over what is already being offered.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sufficient segment size: It is clear that segmenting the market into too many groups results in some that are too small to be economically viable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Targetable: It is also vital that segments are targetable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Measurable: The segment characteristics must be measurable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next

0% 100%

How clear is this criterion to you?

	Totally unclear	Unclear	Partly unclear/clear	Clear	Crystal clear
Parsimony: Although having a large number of segments sounds appealing, because you can capture most of the differences between customers, it is expensive and inefficient to pursue too many segments. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Size: The segments worthy of being targeted must be of a certain size. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Segment's growth rate: A marketing manager might prefer growth, indicating future revenues, over current size. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potential competitive position: You might choose to ignore a lucrative segment if a competitor is well entrenched or if you decide that you cannot offer a product that has a competitive advantage over what is already being offered.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sufficient segment size: It is clear that segmenting the market into too many groups results in some that are too small to be economically viable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Targetable: It is also vital that segments are targetable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Measurable: The segment characteristics must be measurable. Click here for more information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next

0%  100%

You will now see two lists of criteria next to one another.

Which of the two lists below would you use?

- ☐ List A
- ☐ List B
- ☐ Neither of the two

LIST A

Parsimony: Although having a large number of segments sounds appealing, because you can capture most of the differences between customers, it is expensive and inefficient to pursue too many segments.

Sufficient segment size: It is clear that segmenting the market into too many groups results in some that are too small to be economically viable.

Segment's growth rate: A marketing manager might prefer growth, indicating future revenues, over current size.

Potential competitive position: You might choose to ignore a lucrative segment if a competitor is well entrenched or if you decide that you cannot offer a product that has a competitive advantage over what is already being offered.

LIST B

Measurable: The segment characteristics must be measurable.

Size: The segments worthy of being targeted must be of a certain size.

Targetable: It is also vital that segments are targetable.

Next

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0%  100%

Not useful at all Somewhat useful Useful Very useful Extremely useful

How useful do you think List A is for selecting a target segment?

How useful do you think List B is for selecting a target segment?

☐ ☐ ☐ ☐ ☐

☐ ☐ ☐ ☐ ☐

LIST A

Parsimony: Although having a large number of segments sounds appealing, because you can capture most of the differences between customers, it is expensive and inefficient to pursue too many segments.

Sufficient segment size: It is clear that segmenting the market into too many groups results in some that are too small to be economically viable.

Segment's growth rate: A marketing manager might prefer growth, indicating future revenues, over current size.

Potential competitive position: You might choose to ignore a lucrative segment if a competitor is well entrenched or if you decide that you cannot offer a product that has a competitive advantage over what is already being offered.

LIST B

Measurable: The segment characteristics must be measurable.

Size: The segments worthy of being targeted must be of a certain size.

Targetable: It is also vital that segments are targetable.

Next

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0%  100%

Part 3

If you were the owner of an important company...

Next

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The lists you assessed before are often referred to as CHECKLISTS.

If you owned a company, would you want your managers to use a checklist for selecting target markets?

- ☐ No
☐ Yes

Next

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How strongly do you agree with the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Checklists would not work in practice because each situation is different	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of targeting checklists would be useful in my company to make sure important factors are not overseen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After targeting decisions have been made in my company, it occasionally happens that we forgot to check important factors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Checklists would not be useful in practice because they would lead to too much bureaucracy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Checklists would limit managers' creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next

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Part 4

A few questions about your company and your role in the company...

Next

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Which industry does your company mainly operate in?

MAKE SELECTION

Next

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How many years ago had the company you work for been established?

years ago

Next

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0%  100%

How many full time equivalent staff members does your company employ?

full time equivalent staff members

Next

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0%  100%

Please indicate on the slider scale below your assessment of the performance of your company last year.

Overall performance of your company last year	Poor		Excellent
Overall performance relative to major competitors last year	Poor		Excellent
Overall innovation performance of your company last year	Poor		Excellent
Overall innovation performance relative to major competitors last year	Poor		Excellent

Next

*During the survey, please do not use your browser's "Forward" and "Back" buttons.
To move through the survey, click the "Next" button at the bottom of each page.*

0%100%

What is your position in the company?

☐ The manager of a department within the marketing unit
 ☐ Marketing Manager
 ☐ Sales Manager
 ☐ Chief Marketing Officer (CMO)
 ☐ Chief Executive Officer (CEO)
 ☐ Chief Financial Officer (CFO)
 ☐ Other (please indicate):

Next

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How many years of marketing experience in industry do you have?

years

Next

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0%  100%

Are YOU or have YOU been involved in making decisions on target segments for your organisation? By decisions on target segments we mean decisions on any aspect of researching market segments, profiling them and selecting the market segment best suited for your company to focus its efforts on.

- ☐ Yes
☐ No

Next

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0%  100%

To what extent have you participated in deciding on the market segments to be targeted by your company? (Please click on the category that best reflects your opinion).

- ☐ Seldom (Less than 20% of the time)
☐ Occasionally (21 to 40% of the time)
☐ Half the time (41 to 60% of the time)
☐ Frequently (61 to 80% of the time)
☐ Usually or always (81 to 100% of the time)

Next

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0%100%

How knowledgeable are you personally on decisions about selecting target segments?

Not at all knowledgeable

Extremely knowledgeable

Next

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To move through the survey, click the "Next" button at the bottom of each page.

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0%100%

How strongly do you agree with the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
The marketing unit in our company does not pay much attention to financial results of marketing activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The marketing unit in our company is effective in relating their activities to financial outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The marketing unit in our company shows how their marketing plans translate into financial results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next

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0%100%

In your company, who is part of the team that makes targeting decisions?

☐ Team members are selected because they represent a function of the company (e.g. finance, manufacturing, marketing etc.)
 ☐ Team members are selected for other reasons

Next

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0%100%

Please indicate whether you always use the same team members for targeting or whether teams are often changed.

Always same team members

Always new team members

Next

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0%  100%

To which degree are team members assessed by the success of the final decision and to which degree by performance measures specific to their function in the organisation (e.g. finance, manufacturing, marketing etc.)?

Team decisions success  Function specific metrics

Next

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0%  100%

How do you perceive the level of conflict in the team?

No conflict at all Low level of conflict Moderate level of conflict High level of conflict Extremely high level of conflict



Next

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0%  100%

Please indicate on the slider scale below your assessment of the level of performance of your company in terms of segmentation strategy last year.

Overall performance of your company in terms of segmentation strategy

Poor

Excellent

Overall performance of your segmentation strategy relative to major competitors last year

Poor

Excellent

Next

*During the survey, please do not use your browser's "Forward" and "Back" buttons.
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APPENDIX B - PARTICIPANT INFORMATION SHEET

Participant Information Sheet

Marketing Checklist Test in Business Simulator

PURPOSE OF THE RESEARCH

This study is conducted by researchers at the University of Wollongong. The aim of the study is to compare different types of marketing decision support and assess if target market selection methods can be improved. The study determines if a certain type of marketing decision support can support managers in target market selection.

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METHOD AND DEMANDS ON PARTICIPANTS

As part of your tutorial activities in Weeks 9 and 10 in MARK101: Marketing Principles, you are required to participate in this study on market segmentation and targeting. In the next two tutorials, you will participate in a marketing simulation game, making strategy recommendations for a virtual automobile manufacturer. You will need to be committed to playing the game, imagining you are a manager of an automobile manufacturer.

You will be playing the simulation game as a member of a team. Your team discussions will be audio recorded to check if you are following the exact instructions specified in the segment selection checklist; this is verified by listening to the team deliberations. Depending on the checklist you receive, there are various "checkpoints" where student teams will need to have deliberated certain points and responded on the answer sheets.

We will measure your analytical capabilities in the simulation game, as we like to compare how those capabilities affect group performance. Your performance in the simulation game will be measured only by the researchers responsible for doing the study, and only used for the purpose of their study. We will not provide the results of your analytical capabilities to your Subject Coordinator or Tutor. Although your performance in the simulation game is not part of the MARK101 Tutorial Participation assessment, you will still need to participate in the simulation game to be awarded tutorial participation marks in Weeks 9 and 10. Therefore, non-participation is not an option. However, your performance in the experiment will have no bearing on your participation marks or overall mark and grade.

The data collected from your participation will be used only for this research purpose, and only the de-identified data will be published in a thesis, journal articles, conference papers, and book publications.

POSSIBLE RISKS, INCONVENIENCES AND DISCOMFORTS

You will have to commit time to participate in the experiment. Although there is some additional effort that goes into reading the case study and

solving the task, the additional knowledge gained from participating in the study will complement your learning in the Subject, because market segmentation and target segment selection are a key part of your subject learning outcomes.

The researchers seek to compare different types of management decision support; and therefore, different teams will be offered different treatments. This means that you may get a different set of support documents to another team, and your team will need to make decisions based on the specific set of documents you get. However, after you complete the game in two iterations, you will be debriefed on the Subject eLearning site of the nature of the experiment, and will be provided with access, on the Subject eLearning site, to all documents (treatments) used in the simulation.

Although you will be required as part of the experiment to write your student numbers, you will not be identified in publications or findings. Your identity is required as part of data analysis, as we need to be able to compare group performance with overconfidence tests and structural matrices performance. On completion of analysis, we will de-identify the data and report only aggregate information in any publications and presentations.

FUNDING AND BENEFITS OF THE RESEARCH

This research is being funded by Dolnicar QEII Special Scholarship and International Postgraduate Tuition Award. The findings will help to empirically validate a decision support procedure for segment assessment and target segment selection. Your participation in the study may help you to better understand how market segmentation and market strategy work in practice, as the knowledge gained may provide an insight into how market strategy could be applied in practice and how different decisions can impact company sales and profits.

The best performing group (as measured in "game profit" as stated in the game description) will receive a reward of \$300 dollars (one \$100 Unishop voucher to each of the three group members). Your performance in the experiment tasks however has nothing to do with your tutorial participation marks, and thus will not affect your tutorial participation or final marks in the Subject.

ETHICS REVIEW AND COMPLAINTS

This study has been reviewed by the Human Research Ethics Committee (Social Science, Humanities and Behavioural Science) of the University of Wollongong. If you have any concerns or complaints regarding the way this research has been conducted, you can contact the UOW Ethics Officer on (02) 4221 4457 or email rso-ethics@uow.edu.au.

If you have any questions regarding the study, please contact Logi Karlsson, lk976@uowmail.edu.au. Logi will also be available on the two tutorials to answer any queries.

Thank you for your interest in this project.

APPENDIX C - TUTORIAL SCRIPT

Tutorial script

Dear student,

You will be participating in an experiment where you will be required to play a strategy simulation game for the next two weeks. The aim of the study is to examine different levels of managerial decision support.

Participation and performance in this experiment is not a part of your subject assessment, although it would provide an insight into how market strategy could be applied in practice and how different decisions can impact company sales and profits.

We will assess your analytical capabilities in week ten, and your perceived performance, before and after you participate in the game. These assessments are not parts of your Subject assessment, but are needed for the purpose of our experiment.

We need you to form into teams of three, after which you will be given game documents.

[Ensure teams are formed]

Now, I will pass on the game documents, which details what you need to do. These include:

- Decision support document (this would vary between the groups)
- Answer sheets with closed-ended and open-ended options – these are the recommended marketing actions you will need to complete and return to the researcher at the end of the tutorial.
- Description of the game
- Industry and company information booklet

[Give time to students to read the documents]

Once you have completed playing the game for the next two weeks, we will provide on your Subject eLearning site all decision support documents that provide action plans that you may benefit from. We encourage you to review those documents, as they may provide insights on some of the challenges marketing managers face in practice.

APPENDIX D - TEAM ANSWER SHEETS

Week 1

Team Number _____

Please enter your individual details:

Student Number			
Age			
Country of Origin			
Gender	Male - Female	Male - Female	Male - Female
Company role			

Please answer the following question on your performance by ticking one option.

	Much worse than other teams: 0-20%	Worse than other teams: bottom 20-40%	About average: 40-60%	Above average: 60-80%	Much better than other teams: 80-100%
How well do you think your team will perform relative to other teams in your class?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Vehicle class choice

You were required to choose **ONE VEHICLE CLASS** that yields highest profits.

Which one did you choose to serve?

(remember that your company is not allowed to manufacture *Family, Luxury or Utility vehicles*)

- ☐ Economy
- ☐ Sports
- ☐ Minivan
- ☐ Truck
- ☐ Alternative energy

Product design

Determine the preferred car size, engine size and product features of your new vehicle by putting values in the table below.

Car size See size range below	Engine size Horsepower See size range below	Interiour Min 1 – Max 5	Styling Min 1 – Max 5	Safety Min 1 – Max 4	Quality Min 1 – Max 6

Car- and vehicle size range, minimum and maximum possible in each vehicle class	
Economy Car size: Min 1 – Max 35 Engine size: Min 50 – Max 175	Truck Car size: Min 25 – Max 95 Engine size: Min 120 – Max 300
Sports Car size: Min 10 – Max 65 Engine size: Min 130 – Max 300	Alternative energy Car size: Min 5 – Max 70 Engine size: Min 75 – Max 200
Minivan Car size: Min 45 – Max 90 Engine size: Min 140 – Max 250	

Product marketing

Retail price

You are required to select a recommended retail price for the new vehicle: \$_____

Advertising and promotion

You need to decide how much you want to spend on advertising and promotion to promote the new vehicle, amount should be in millions:

\$_____ (million dollars) on advertising

\$_____ (million dollars) on promotion

Message delivery

You have to determine what message about your new vehicle you want to deliver to potential customers. You are required to choose **ONE** of the following message types below, which will be emphasised through advertising and promotion.

Please put **X** in front of **ONE** feature you want to emphasise in the company's promotions.

- ☐ Quality
- ☐ Safety
- ☐ Interior
- ☐ Styling
- ☐ Performance

Product manufacturing and sales

How many vehicles do you want to manufacture in the first year? _____ (in 000's)

How many vehicles do you plan to sell in the first year? _____ (in 000's)

Week 2

Team Number _____

Please enter your individual details:

Student Number			
Age			
Country of Origin			
Gender	Male - Female	Male - Female	Male - Female
Company role			

Please answer the following question on your performance by ticking one option.

	Much worse than other teams: 0-20%	Worse than other teams: bottom 20-40%	About average: 40-60%	Above average: 60-80%	Much better than other teams: 80-100%
How well do you think your team will perform relative to other teams in your class?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Vehicle class choice

You were required to choose **ONE VEHICLE CLASS** that yields highest profits.

Which one did you choose to serve?

(remember that your company is not allowed to manufacture *Economy, Sports or Truck vehicles*)

- ☐ Family
- ☐ Luxury
- ☐ Minivan
- ☐ Utility
- ☐ Alternative energy

Product design

Determine the preferred car size, engine size and product features of your new vehicle by putting values in the table below.

Car size See size range below	Engine size Horsepower See size range below	Interiour Min 1 – Max 5	Styling Min 1 – Max 5	Safety Min 1 – Max 4	Quality Min 1 – Max 6

Car- and vehicle size range, minimum and maximum possible in each vehicle class	
Family Car size: Min 25 – Max 65 Engine size: Min 120 – Max 250	Utility Car size: Min 25 – Max 95 Engine size: Min 120 – Max 300
Luxury Car size: Min 40 – Max 80 Engine size: Min 180 – Max 300	Alternative energy Car size: Min 5 – Max 70 Engine size: Min 75 – Max 200
Minivan Car size: Min 45 – Max 90 Engine size: Min 140 – Max 250	

Product marketing

Retail price

You are required to select a recommended retail price for the new vehicle: \$_____

Advertising and promotion

You need to decide how much you want to spend on advertising and promotion to promote the new vehicle, amount should be in millions:

\$_____ (million dollars) on advertising

\$_____ (million dollars) on promotion

Message delivery

You have to determine what message about your new vehicle you want to deliver to potential customers. You are required to choose **ONE** of the following message types below, which will be emphasised through advertising and promotion.

Please put **X** in front of **ONE** feature you want to emphasise in the company's promotions.

- ☐ Quality
- ☐ Safety
- ☐ Interior
- ☐ Styling
- ☐ Performance

Product manufacturing and sales

How many vehicles do you want to manufacture in the first year?_____ (in 000's)

How many vehicles do you plan to sell in the first year? _____ (in 000's)

APPENDIX E - INDIVIDUAL ANSWER SHEETS

Week 1

Student Number _____

Team Number _____

Please describe **all** criteria that you applied when choosing this vehicle class:

Which vehicle classes did you investigate based on these criteria before making your choice? Please check the box(es) for all classes you investigated based on these criteria:

☐ Economy ☐ Sports ☐ Minivan ☐ Truck ☐ Alternative energy

	Much worse than other teams: 0-20%	Worse than other teams: bottom 20-40%	About average: 40-60%	Above average: 60-80%	Much better than other teams: 80-100%
How well do you think your team performed relative to other teams in your class?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please explain your reasoning for choosing the attribute levels (for *interior*, *styling*, *safety & quality*).

Please explain your reasoning for the price that you have determined:

	Not at all difficult						Very difficult
How difficult did you as a team find solving this case?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very poor team work						Excellent team work
How would you rate the quality of the overall team work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Remove next two for control group]

	Not at all						Very much so
The checklist was difficult to apply to the case	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The checklist was far too long	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The checklist limited our creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The checklist improved our decision making	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use such a checklist again on a similar task	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not at all	Only in beginning	Only in the end	Only to start and at end	All the way through
How did you use the checklist for solving this case	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not at all						Very much so
We had difficulties getting started	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coordination of work distribution was difficult	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It was clear to us how to assess vehicle classes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We ran out of time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We did not really depend on quantitative information for many of our decisions and had to guess	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It was clear when to do what	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our team clearly showed how the plans translate into financial results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All strategic decisions were clearly linked to financial outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marketing decisions were clearly linked to financial outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Production and vehicle design decisions were clearly linked to financial outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you use the cost calculator?

☐ No ☐ Yes

How many different vehicle classes did you investigate _____

Which vehicle classes did you investigate in more detail using the cost calculator?

Please check the box(es) for all classes you investigated using the calculator:

☐ Economy ☐ Sports ☐ Minivan ☐ Truck ☐ Alternative energy

Questions about the simulation game:	Not at all	Very much so
The simulation game encouraged me to think of my own responsibility in the game.	<input type="radio"/>	<input type="radio"/>
The simulation encouraged me to think of the effect that my decision had on my team mates' decisions.	<input type="radio"/>	<input type="radio"/>
During the simulation game, I was focused on my own role.	<input type="radio"/>	<input type="radio"/>
During the simulation game, a sense of 'We' was in the top of my mind.	<input type="radio"/>	<input type="radio"/>
	Strongly disagree	Strongly agree
Team members helped each other solving the case	<input type="radio"/>	<input type="radio"/>
The members of this team got along well	<input type="radio"/>	<input type="radio"/>
We had high mutual respect of each others' opinions.	<input type="radio"/>	<input type="radio"/>
In our group, we had lots of bickering about who should do what job	<input type="radio"/>	<input type="radio"/>
There was difference of opinion among the team members	<input type="radio"/>	<input type="radio"/>
The members of my group were supportive of each others' ideas	<input type="radio"/>	<input type="radio"/>
There were clashes between group members	<input type="radio"/>	<input type="radio"/>
There was friendliness among the group members	<input type="radio"/>	<input type="radio"/>
It was easy to talk openly to all members of this group	<input type="radio"/>	<input type="radio"/>
It was easy to ask advice from any member of this group	<input type="radio"/>	<input type="radio"/>
All members of our team contributed equally to the discussion	<input type="radio"/>	<input type="radio"/>
One team member clearly dominated the decisions taken	<input type="radio"/>	<input type="radio"/>

	Strongly disagree						Strongly agree
Everyone on my team did their fair share of the work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No one in my team depended on other team members to do the work for them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All the members on my team contributed equally to the work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All members of the team openly shared their information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did most of the work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The members of my team vary widely in their areas of knowledge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The members of my team have a variety of different backgrounds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The members of my team have skills and abilities that complement each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Week 2**Student Number** _____**Team Number** _____

Questions about yourself:

	Strongly disagree						Strongly agree
I can get people to listen to what I say	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My wishes do not carry much weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can get others to do what I want	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My ideas and opinions are often ignored	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree						Strongly agree
My friends/relatives would describe me as an expert on cars	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know a great deal about cars	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know a lot about the differences between automotive companies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I watch TV programs on cars (specialty shows & races) and read a lot about cars	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please describe **all** criteria that you applied when choosing which vehicle class to enter:

Which vehicle classes did you investigate based on these criteria before making your choice? Please check the box(es) for all classes you investigated based on these criteria:

☐ Family ☐ Luxury ☐ Minivan ☐ Utility ☐ Alternative energy

	<div> <div>Much worse than other teams: 0-20%</div> <div>Worse than other teams: bottom 20-40%</div> <div>About average: 40-60%</div> <div>Above average: 60-80%</div> <div>Much better than other teams: 80-100%</div> </div>
How well do you think your team performed relative to other teams in your class?	<div> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> </div>

Please explain your reasoning for choosing the attribute levels (for *interior*, *styling*, *safety & quality*).

Please explain your reasoning for the price that you have determined:

	<div> <div>Not at all difficult</div> <div>Very difficult</div> </div>
How difficult did you as a team find solving this case?	<div> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> </div>

	<div> <div>Very poor team work</div> <div>Excellent team work</div> </div>
How would you rate the quality of the overall team work?	<div> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> </div>

[Remove next two for control group]

	Not at all						Very much so
The checklist was difficult to apply to the case	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The checklist was far too long	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The checklist limited our creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The checklist improved our decision making	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use such a checklist again on a similar task	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Not at all	Only in beginning	Only in the end	Only to start and at end			All the way through
How did you use the checklist for solving this case	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
	Not at all						Very much so
We had difficulties getting started	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coordination of work distribution was difficult	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It was clear to us how to assess vehicle classes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We ran out of time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We did not really depend on quantitative information for many of our decisions and had to guess	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It was clear when to do what	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our team clearly showed how the plans translate into financial results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All strategic decisions were clearly linked to financial outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marketing decisions were clearly linked to financial outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Production and vehicle design decisions were clearly linked to financial outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you use the cost calculator?

☐ No ☐ Yes

How many different vehicle classes did you investigate _____

Which vehicle classes did you investigate in more detail using the cost calculator?

Please check the box(es) for all classes you investigated using the calculator:

☐ Family ☐ Luxury ☐ Minivan ☐ Utility ☐ Alternative energy

Questions about the simulation game:	Not at all						Very much so
The simulation game encouraged me to think of my own responsibility in the game.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The simulation encouraged me to think of the effect that my decision had on my team mates' decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During the simulation game, I was focused on my own role.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During the simulation game, a sense of 'We' was in the top of my mind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree						Strongly agree
Team members helped each other solving the case	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The members of this team got along well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We had high mutual respect of each others' opinions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In our group, we had lots of bickering about who should do what job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There was difference of opinion among the team members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The members of my group were supportive of each others' ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There were clashes between group members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There was friendliness among the group members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It was easy to talk openly to all members of this group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It was easy to ask advice from any member of this group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All members of our team contributed equally to the discussion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
One team member clearly dominated the decisions taken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree						Strongly agree
Everyone on my team did their fair share of the work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No one in my team depended on other team members to do the work for them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All the members on my team contributed equally to the work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All members of the team openly shared their information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly disagree						Strongly agree
I did most of the work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The members of my team vary widely in their areas of knowledge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The members of my team have a variety of different backgrounds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The members of my team have skills and abilities that complement each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX F - STRATSIM*MARKETING* CASE

The case

Congratulations on your appointment to your management position with the automotive manufacturer Amazing cars Ltd., one of five main competitors in the industry.

Your team's primary objective in this game is to increase the company's profits and do what you can to ensure that the company will become most profitable company of the five in the industry.

The team objective can be achieved by identifying segments in the market that are currently underserved and develop a completely new vehicle to meet their needs.

Industry Overview

Amazing cars Ltd. generates revenue through sales of cars to automobile dealers, with sales in the most recent year 4.3 million units, and some growth expected in the next year. An overview of the five firms and the vehicles they manufacture is provided below.

Firm Name	Sales (Billions)	Vehicles
Amazing Cars (A)	\$ 20.5	Alec, Alfa, Awesome
Best Motor Works (B)	\$ 12.9	Beaut, Boffo, Buzzy
Cool Cars (C)	\$ 13.7	Cafav, Camini, Climax
Driven Motor Co. (D)	\$ 19.3	Defy, Delite, Detonka
Efficient Motors (E)	\$ 20.1	Efizz, Estruck, Euro

The industry is broken into eight classes:; *Economy (E)*, *Family (F)*, *Luxury (L)*, *Sports (S)*, *Minivan (M)*, *Utility (U)* and *Truck (T)*. Additionally there is a new category, *Alternative Energy Vehicle (A)*, which no company has entered yet, but you can enter if you prefer to do so.

Due to certain limitations your company can now only develop new products in the following categories:

Economy	Sports	Minivan	Truck	Alternative energy
----------------	---------------	----------------	--------------	---------------------------

This means that you are unable to develop *Family*, *Luxury* or *Utility* vehicles.

All of your competitors have the capacity to enter any of the above categories if they decide to do so, subject to development cost. There are underlying needs met by these product classes. For example, a minivan meets the need for family transportation plus cargo room in a fairly economical package. On next page you see sales for each vehicle class and market share for each vehicle.

Customers

There are two broad approaches to analysing this market, one by vehicle class and second by consumer segment. Next page provides detailed information on each segment in the game. Customers are labelled 1-5 for segments and E, F, L, S, M, U, T and A for preferred vehicle class. As an example, 1E customers are Value Seekers (1), who prefer an Economy (E) car. Of course, customers such as 1E represent an aggregate of many individuals.

Some customers have a preference for a particular vehicle class. For other customers, there can be two or more vehicle classes that would meet their needs. For example, 4F

customers are High Income (4) people who have a primary preference for a Family (F) car and a secondary preference for a Luxury (L) car.

Market research has also identified some potential new customers in the market, whose needs are not yet satisfied by the current vehicles. New customers may be looking for a different configuration of an existing vehicle class. If a firm introduces such a vehicle that “excites” these customers, demand may be created.

Segments

Five consumer segments have been identified in the market, numbered 1 through 5:

Value Seekers (1)

Value Seekers have basic transportation needs. They use their vehicle to commute to work, or perhaps as a basic all-purpose vehicle.

Families (2)

Families have flexible, but somewhat basic transportation needs. They need a combination of people and cargo-carrying capabilities with perhaps a bit of family fun built in.

Singles (3)

The singles market is young, with more disposable income to spend on transportation and a wide variety of transportation needs.

High Income (4)

People with high incomes have more elaborate transportation needs. This segment may be families, professionals, or retirees.

Enterprisers (5)

Enterprisers use their vehicles for business transportation and also to impress potential clients.

A full profile of each segment is provided in Handbook 2 (Market Research)

Customers Grouped by Segment

Segment	Sales (000s Units)	Customers	Preferred Vehicle Class
Value Seekers (1)	792	1E, 1T	Economy (1E), Truck (1T)
Families (2)	1,663	2E, 2F, 2M	Economy/Family (2E), Family (2F), Minivan (2M)
Singles (3)	851	3S, 3T, 3U	Sports (3S), Truck/Sports (3T), Utility/Sports (3U)
High Incomes (4)	363	4F, 4L	Family/Luxury (4F), Luxury (4L)
Enterprisers (5)	614	5L, 5U	Luxury/Sports (5L), Utility (5U)

Customers Grouped by Preferred Vehicle Class

Vehicle Class	Sales (000s Units)	Customers	Vehicles
Economy (E)	914	1E, 2E	Alec , Delite
Family (F)	1,439	2F, 4F	Alfa , Boffo, Cafav, Defy, Efizz
Luxury (L)	291	4L, 5L	Beaut, Climax
Sports (S)	141	3S	Buzzy
Minivan (M)	181	2M	Camini
Utility (U)	640	3U, 5U	Awesome , Euro
Truck (T)	677	1T, 3T	Detonka, Estruck
Alternative energy (A)	60-100 estimated	5A	New category, no vehicles yet

Advertising and Promotion

Product advertising plays an important role in establishing vehicle awareness and shaping consumers' perceptions of products. The theme emphasizes one of the primary characteristics of the vehicle —performance, interior, styling, safety, or quality. Advertising and promotion comes at a cost, but can be crucial when launching new vehicles to the market. The more spent on advertising and promotion, the more awareness your campaign will get. In return, the stronger the feedback should be, given that you developed the right product.

Technology Capabilities

Each firm has technological capabilities that parallel the customer needs of *interior*, *styling*, *safety*, and *quality*. To keep measurement relatively straightforward, these are rated from 1 to the current maximum (where 1 equals a poor rating on that attribute).

The higher the attributes on these four dimensions, the more appealing to customers, all other things being equal. Customers may find a particular attribute more important (i.e. "hot button") depending on their needs and preferences. Customers weigh these attributes against the price of the product, and also consider the size and engine performance of the vehicle, which is typically a personal preference.

Technology Capabilities of Firms

	Interior max value	Styling max value	Safety max value	Quality max value
Amazing Cars (A)	5	5	4	6
Best Motor W.(B)	7	8	5	7
Cool Cars (C)	6	7	5	7
Driven Motor (D)	4	5	5	6
Efficient Motors (E)	3	5	3	5

Each customer has "needs" that can be measured and compared. These needs have been identified as:

Size Length and width of vehicle, which includes passenger and cargo space.

Performance Measured by engine horsepower.

Interior Comfort, vision, instrumentation, music systems, ergonomics.

Styling General curb appeal, styling, handling, finish / workmanship.

Safety Structural design, braking systems, safety features.

Quality Overall reliability, durability, consistency of products.

All Vehicle Attributes/Characteristics by Class and Name

Class	Name	Units sold (000's)	Price	Size 0-100	Horsepower 50 - 300	Interior 1 - max	Styling 1 - max	Safety 1 - max	Quality 1 - max
Economy	Alec	581	\$15,351	14	135	2	1	3	2
	Delite	333	\$11,293	5	85	1	1	1	1
Family	Alfa	315	\$24,084	28	165	2	1	3	2
	Boffo	98	\$35,003	49	200	4	3	2	2
	Cafav	191	\$31,361	49	165	4	2	2	2
	Defy	417	\$25,921	43	165	2	1	3	2
	Efizz	418	\$18,869	35	140	1	1	2	1
Luxury	Beaut	172	\$38,385	62	240	2	4	2	2
	Climax	119	\$45,997	74	240	4	2	2	2
Sports	Buzzy	141	\$34,652	54	190	3	3	2	3
Minivan	Camini	181	\$24,144	82	200	2	1	2	1
Utility	Awesome	310	\$21,149	40	220	1	1	1	1
	Euro	299	\$26,528	59	200	1	3	1	1
Truck	Detonka	378	\$19,572	66	185	1	1	1	1
	Estruck	330	\$21,843	59	200	1	1	1	2
Alternat. Energy	No cars in category	60-100 est.	\$24-36k	30 - 50	?	?	?	?	?

Cost of manufacturing varies, depending on vehicle type and quantity of each attribute. You can see exact **manufacturing cost details** for all products in the computer program you now have access to (Excel sheet named "Manufacturing cost calculator"). There you can estimate unit cost, development cost of new vehicles (**which will be divided over a period of 5 years**), advertising and promotion cost.

The calculator is only for support and if you decide to use it for support you are still required to write your decisions on the answer sheet. **The cost calculator will be turned off 10 minutes before the class ends.**

APPENDIX G - SIMULATION GAME HANDBOOKS

GAME HANDBOOKS

In this document there are three separate Handbooks containing information related to the game.

HANDBOOK 1 – Page 3

Company performance overview and industry information

HANDBOOK 2 – Page 12

Market research data and consumer information

HANDBOOK 3 – Page 27

Production cost information

HANDBOOK 1

Company performance overview and industry information

Handbook 1 – Overview

Part 1: Amazing cars – Performance overview

Performance summary Amazing Cars

Income statement Amazing Cars

Product contribution Amazing Cars

Marketing detail Amazing Cars

Part 2: Product details and competition

Products and Competition

Product detail ALEC

Product detail ALFA

Product detail AWESOME

Product detail Beaut

Product detail Boffo

Product detail Buzzy

Product detail Cafav

Product detail Camini

Product detail Climax

Product detail Defy

Product detail Delite

Product detail Detonka

Product detail Efizz

Product detail Estruck

Product detail Euro

Part 3: Automotive industry information

Vehicle classes

Market share by class

Economy class

Family class

Luxury class

Sports class

Minivan class

Utility class

Truck class

Part 1: Amazing cars – Performance overview

Performance summary Amazing Cars

Firm A

	Per. 1
Sales (\$)	\$20,516.4
Sales (000's units)	1,207
Market Share (\$)	23.7%
Market Share (units)	28.2%
Net Income	\$1,780.4
Cum. Net Income	\$1,780.4
Stock Price	\$50.56
Market Value	\$21,487.0
Return on Sales	8.7%
Return on Assets	16.1%
Firm Preference	19.2%
Dealer Rating	62
COGS	71.4%
Capacity Utilization	95.2%
Debt	\$7,018.0
Stock Issue/Purch. %	0.0%

Note: Dollar amounts are in millions.

Income statement Amazing Cars

Firm A

	\$Mill.	\$Mill.	
Sales	20,516		100.0%
Materials	10,156		49.5%
Labor	4,484		21.9%
Gross Margin		5,877	28.6%
Marketing	378		1.8%
Research and Development	348		1.7%
General and Administrative	867		4.2%
Manufacturing Overhead	292		1.4%
Depreciation	898		4.4%
Income from Operations		3,093	15.1%
Extraordinary Items	0		0.0%
Interest Income/Expense	-354		-1.7%
Net Income		2,739	13.4%
Tax	959		4.7%
Income after Tax		1,780	8.7%
Dividends		100	0.24/sh

Product contribution Amazing Cars

Firm A Product Contribution

Vehicle	Units (000's)	Dealer Sales (mill.)	Direct Sales (mill.)	COGS (mill.)	Gross Margin (mill.)	Adv Promo (mills.)	After Mkting (mill.)
Alec	581	\$8118	\$0	\$6028	\$2090	\$60	\$2030
Alfa	315	\$6756	\$0	\$4326	\$2430	\$120	\$2310
Awesome	310	\$5642	\$0	\$4286	\$1356	\$90	\$1266
Total	1,207	\$20516	\$0	\$14640	\$5877	\$270	\$5607

Note: Dollar amounts are in millions.

Per Unit Contribution

Vehicle	Per Unit Revenue	Per Unit COGS	Per Unit Margin	Margin Pct.	Adv Promo	Per Unit Contrib.	Contrib. Pct.
Alec	\$13970	\$10373	\$3597	26%	\$103	\$3494	25%
Alfa	\$21435	\$13724	\$7710	36%	\$381	\$7330	34%
Awesome	\$18188	\$13817	\$4371	24%	\$290	\$4081	22%
Total	\$17005	\$12134	\$4871	29%	\$224	\$4647	27%

Note: Dollar amounts are per unit.

Marketing detail Amazing Cars

Firm A

Consumer	Budget (mill.)	Company Owned /Fleet	Budget (mill.)
Regional Corp. Adv.	\$100	Direct Sales Force	\$0
Direct Mail	\$2	Direct Mail	\$0
Public Relations	\$6		
Total	\$108	Total	\$0

Vehicle	Val Mkt Share	MSRP	Dealer Disc.	Avg Sell Price	Adv. (mill.)	Adv. Theme	Promo. (mill.)	Days Inv.
Alec	9.0%	\$15,351	9.0%	\$14,572	\$40	Styling	\$20	30
Alfa	7.8%	\$24,084	11.0%	\$23,121	\$80	Interior	\$40	30
Awesome	6.7%	\$21,149	14.0%	\$20,426	\$60	Quality	\$30	30
Total					\$180		\$90	

Part 2: Product details and competition

Products and Competition

<u>Vehicle</u>	<u>Class</u>	<u>Unit Share</u>	<u>MSRP</u>	<u>Size</u>	Eng. (HP)	Int	Styl	Safe	Qual
Alec	Economy	13.6%	\$15,351	14	135	2	1	3	2
Alfa	Family	7.4%	\$24,084	28	165	2	1	3	2
Awesome	Utility	7.2%	\$21,149	40	220	1	1	1	1
Beaut	Luxury	4.0%	\$38,385	62	240	2	4	2	2
Boffo	Family	2.3%	\$35,003	49	200	4	3	2	2
Buzzy	Sports	3.3%	\$34,652	54	190	3	3	2	3
Cafav	Family	4.5%	\$31,361	49	165	4	2	2	2
Camini	Minivan	4.2%	\$24,144	82	200	2	1	2	1
Climax	Luxury	2.8%	\$45,997	74	240	4	2	2	2
Defy	Family	9.7%	\$25,921	43	165	2	1	3	2
Delite	Economy	7.8%	\$11,293	5	85	1	1	1	1
Detonka	Truck	8.8%	\$19,572	66	185	1	1	1	1
Efizz	Family	9.8%	\$18,869	35	140	1	1	2	1
Estruck	Truck	7.0%	\$21,843	75	280	1	1	1	2
Euro	Utility	7.7%	\$26,528	59	200	1	3	1	1

AMAZING CARS

Product detail ALEC

Manufacturer	Firm A	MSRP	\$15,351
Platform	No Change	Dealer Invoice	\$13,970
Model Class	Economy	Avg. Retail Price	\$14,572
Engine (HP)	135	Advertising (mill)	\$40.0
Size Position	14	Advertising Theme	Styling
Interior Rating	2	Promotion (mill)	\$20.0
Styling Rating	1	Units Sold (000's)	581
Safety Rating	3	Value Mkt Share	9.0%
Quality Rating	2	Share of Class	63.5%

Product detail ALFA

Manufacturer	Firm A	MSRP	\$24,084
Platform	No Change	Dealer Invoice	\$21,435
Model Class	Family	Avg. Retail Price	\$23,121
Engine (HP)	165	Advertising (mill)	\$80.0
Size Position	28	Advertising Theme	Interior
Interior Rating	2	Promotion (mill)	\$40.0
Styling Rating	1	Units Sold (000's)	315
Safety Rating	3	Value Mkt Share	7.8%
Quality Rating	2	Share of Class	21.9%

Product detail AWESOME

Manufacturer	Firm A	MSRP	\$21,149
Platform	No Change	Dealer Invoice	\$18,188
Model Class	Utility	Avg. Retail Price	\$20,426
Engine (HP)	220	Advertising (mill)	\$60.0
Size Position	40	Advertising Theme	Quality
Interior Rating	1	Promotion (mill)	\$30.0
Styling Rating	1	Units Sold (000's)	310
Safety Rating	1	Value Mkt Share	6.7%
Quality Rating	1	Share of Class	48.5%

BEST MOTOR WORKS

Product detail Beaut

Manufacturer	Firm B	MSRP	\$38,385
Platform	No Change	Dealer Invoice	\$32,243
Model Class	Luxury	Avg. Retail Price	\$36,195
Engine (HP)	240	Advertising (mill)	\$80.0
Size Position	62	Advertising Theme	Interior
Interior Rating	2	Promotion (mill)	\$20.0
Styling Rating	4	Units Sold (000's)	172
Safety Rating	2	Value Mkt Share	6.6%
Quality Rating	2	Share of Class	59.2%

Product detail Boffo

Manufacturer	Firm B	MSRP	\$35,003
Platform	No Change	Dealer Invoice	\$30,803
Model Class	Family	Avg. Retail Price	\$32,482
Engine (HP)	200	Advertising (mill)	\$60.0
Size Position	49	Advertising Theme	Quality
Interior Rating	4	Promotion (mill)	\$40.0
Styling Rating	3	Units Sold (000's)	98
Safety Rating	2	Value Mkt Share	3.4%
Quality Rating	2	Share of Class	6.8%

Product detail Buzzy

Manufacturer	Firm B	MSRP	\$34,652
Platform	No Change	Dealer Invoice	\$30,494
Model Class	Sports	Avg. Retail Price	\$33,090
Engine (HP)	190	Advertising (mill)	\$40.0
Size Position	54	Advertising Theme	Styling
Interior Rating	3	Promotion (mill)	\$30.0
Styling Rating	3	Units Sold (000's)	141
Safety Rating	2	Value Mkt Share	5.0%
Quality Rating	3	Share of Class	100.0%

COOL CARS

Product detail Cafav

Manufacturer	Firm C	MSRP	\$31,361
Platform	No Change	Dealer Invoice	\$27,598
Model Class	Family	Avg. Retail Price	\$29,202
Engine (HP)	165	Advertising (mill)	\$60.0
Size Position	49	Advertising Theme	Styling
Interior Rating	4	Promotion (mill)	\$40.0
Styling Rating	2	Units Sold (000's)	191
Safety Rating	2	Value Mkt Share	5.9%
Quality Rating	2	Share of Class	13.3%

Product detail Camini

Manufacturer	Firm C	MSRP	\$24,144
Platform	No Change	Dealer Invoice	\$21,005
Model Class	Minivan	Avg. Retail Price	\$22,530
Engine (HP)	200	Advertising (mill)	\$40.0
Size Position	82	Advertising Theme	Styling
Interior Rating	2	Promotion (mill)	\$30.0
Styling Rating	1	Units Sold (000's)	181
Safety Rating	2	Value Mkt Share	4.4%
Quality Rating	1	Share of Class	100.0%

Product detail Climax

Manufacturer	Firm C	MSRP	\$45,997
Platform	No Change	Dealer Invoice	\$38,637
Model Class	Luxury	Avg. Retail Price	\$43,751
Engine (HP)	240	Advertising (mill)	\$80.0
Size Position	74	Advertising Theme	Safety
Interior Rating	4	Promotion (mill)	\$20.0
Styling Rating	2	Units Sold (000's)	119
Safety Rating	2	Value Mkt Share	5.5%
Quality Rating	2	Share of Class	40.8%

DRIVEN MOTOR CO

Product detail Defy

Manufacturer	Firm D	MSRP	\$25,921
Platform	No Change	Dealer Invoice	\$22,552
Model Class	Family	Avg. Retail Price	\$24,323
Engine (HP)	165	Advertising (mill)	\$80.0
Size Position	43	Advertising Theme	Styling
Interior Rating	2	Promotion (mill)	\$40.0
Styling Rating	1	Units Sold (000's)	417
Safety Rating	3	Value Mkt Share	10.8%
Quality Rating	2	Share of Class	29.0%

Product detail Delite

Manufacturer	Firm D	MSRP	\$11,293
Platform	No Change	Dealer Invoice	\$10,277
Model Class	Economy	Avg. Retail Price	\$10,698
Engine (HP)	85	Advertising (mill)	\$40.0
Size Position	5	Advertising Theme	Quality
Interior Rating	1	Promotion (mill)	\$20.0
Styling Rating	1	Units Sold (000's)	333
Safety Rating	1	Value Mkt Share	3.8%
Quality Rating	1	Share of Class	36.5%

Product detail Detonka

Manufacturer	Firm D	MSRP	\$19,572
Platform	No Change	Dealer Invoice	\$17,223
Model Class	Truck	Avg. Retail Price	\$18,946
Engine (HP)	185	Advertising (mill)	\$60.0
Size Position	66	Advertising Theme	Styling
Interior Rating	1	Promotion (mill)	\$30.0
Styling Rating	1	Units Sold (000's)	378
Safety Rating	1	Value Mkt Share	7.6%
Quality Rating	1	Share of Class	55.8%

EFFICIENT MOTORS

Product detail Efizz

Manufacturer	Firm E	MSRP	\$18,869
Platform	No Change	Dealer Invoice	\$16,228
Model Class	Family	Avg. Retail Price	\$17,502
Engine (HP)	140	Advertising (mill)	\$80.0
Size Position	35	Advertising Theme	Styling
Interior Rating	1	Promotion (mill)	\$40.0
Styling Rating	1	Units Sold (000's)	418
Safety Rating	2	Value Mkt Share	7.8%
Quality Rating	1	Share of Class	29.1%

Product detail Estruck

Manufacturer	Firm E	MSRP	\$26,528
Platform	No Change	Dealer Invoice	\$22,814
Model Class	Utility	Avg. Retail Price	\$25,424
Engine (HP)	200	Advertising (mill)	\$40.0
Size Position	59	Advertising Theme	Quality
Interior Rating	1	Promotion (mill)	\$30.0
Styling Rating	3	Units Sold (000's)	330
Safety Rating	1	Value Mkt Share	8.9%
Quality Rating	1	Share of Class	51.5%

Product detail Euro

Manufacturer	Firm E	MSRP	\$21,843
Platform	No Change	Dealer Invoice	\$19,222
Model Class	Truck	Avg. Retail Price	\$21,155
Engine (HP)	280	Advertising (mill)	\$60.0
Size Position	75	Advertising Theme	Perform
Interior Rating	1	Promotion (mill)	\$20.0
Styling Rating	1	Units Sold (000's)	299
Safety Rating	1	Value Mkt Share	6.7%
Quality Rating	2	Share of Class	44.2%

Part 3: Automotive industry information

Vehicle classes

Class	Mfr Sales	Retail Sales	Unit Sales	%Chg (units)	Num. Veh.	Leader
Economy	\$11,544	\$12,034	914	-4%	2	Alec
Family	\$31,218	\$33,491	1,439	+5%	5	Efizz
Luxury	\$10,159	\$11,449	291	+8%	2	Beaut
Sports	\$4,289	\$4,654	141	+4%	1	Buzzy
AEV	\$0	\$0	0	NA	0	
Minivan	\$3,810	\$4,086	181	+4%	1	Camini
Utility	\$13,164	\$14,719	640	+7%	2	Euro
Truck	\$12,252	\$13,480	677	+6%	2	Detonka
Total	\$86,436	\$93,914	4,283	+3%	15	Alec

Note: Dollar amounts are in millions, units in thousands.

Market share by class

Class	Units (000's)	Chg	Firm A	Firm B	Firm C	Firm D	Firm E
Economy	914	-4%	63.5%			36.5%	
Family	1,439	+5%	21.9%	6.8%	13.3%	29.0%	29.1%
Luxury	291	+8%		59.2%	40.8%		
Sports	141	+4%		100.0%			
AEV	0	NA					
Minivan	181	+4%			100.0%		
Utility	640	+7%	48.5%				51.5%
Truck	677	+6%				55.8%	44.2%
Total	4,283	+3%	28.2%	9.6%	11.5%	26.3%	24.4%

See next page for details on each class.

Economy class

Vehicle	Share of Class	Overall Share	MSRP	Adv. (mill.)	Adv. Theme	Promo. (mill.)
Alec	64%	14%	\$15,351	\$40	Styling	\$20
Delite	36%	8%	\$11,293	\$40	Quality	\$20

Family class

Vehicle	Share of Class	Overall Share	MSRP	Adv. (mill.)	Adv. Theme	Promo. (mill.)
Efizz	29%	10%	\$18,869	\$80	Styling	\$40
Defv	29%	10%	\$25,921	\$80	Styling	\$40
Alfa	22%	7%	\$24,084	\$80	Interior	\$40
Cafav	13%	4%	\$31,361	\$60	Styling	\$40
Boffo	7%	2%	\$35,003	\$60	Quality	\$40

Luxury class

Vehicle	Share of Class	Overall Share	MSRP	Adv. (mill.)	Adv. Theme	Promo. (mill.)
Beaut	59%	4%	\$38,385	\$80	Interior	\$20
Climax	41%	3%	\$45,997	\$80	Safety	\$20

Sports class

Vehicle	Share of Class	Overall Share	MSRP	Adv. (mill.)	Adv. Theme	Promo. (mill.)
Buzzy	100%	3%	\$34,652	\$40	Styling	\$30

Minivan class

Vehicle	Share of Class	Overall Share	MSRP	Adv. (mill.)	Adv. Theme	Promo. (mill.)
Camini	100%	4%	\$24,144	\$40	Styling	\$30

Utility class

Vehicle	Share of Class	Overall Share	MSRP	Adv. (mill.)	Adv. Theme	Promo. (mill.)
Euro	52%	8%	\$26,528	\$40	Quality	\$30
Awesome	48%	7%	\$21,149	\$60	Quality	\$30

Truck class

Vehicle	Share of Class	Overall Share	MSRP	Adv. (mill.)	Adv. Theme	Promo. (mill.)
Detonka	56%	9%	\$19,572	\$60	Styling	\$30
Estruck	44%	7%	\$21,843	\$60	Perform	\$20

HANDBOOK 2

Market research data and consumer information

Handbook 2 – Overview

Part 1: Market overview

Market share by class

Part 2: Market research data

Focus groups overview

Focus group studies

Vehicle sales by customer

Part 3: Consumer information

New customers

Consumer segments

Consumer customers

Consumer segments overview

Customer detail

Part 1: Market overview

Market share by class

Class	Units (000's)	chg	Firm A	Firm B	Firm C	Firm D	Firm E
Economy	914	-4%	63.5%			36.5%	
Family	1439	5%	21.9%	6.8%	13.3%	29.0%	29.1%
Luxury	291	8%		59.2%			
Sports	141	4%		100.0%			
Alternative energy	0	NA					
Minivan	181	4%			100.0%		
Utility	640	7%	48.5%				51.5%
Truck	677	6%				55.8%	44.2%
Total	4283	3%	28.2%	9.6%	11.5%	26.3%	24.4%

	Vehicle	Share of class	Overall share	Retail price	Adv. Theme
Economy	Alec	64%	14%	\$ 15,351.00	styling
	Delite	36%	8%	\$ 11,293.00	quality
Family	Efizz	29%	10%	\$ 18,869.00	styling
	Defy	29%	10%	\$ 25,921.00	styling
	Alfa	22%	7%	\$ 24,084.00	interior
	Cafav	13%	4%	\$ 31,361.00	styling
Luxury	Boffo	7%	2%	\$ 35,003.00	quality
	Beaut	59%	4%	\$ 38,385.00	interior
	Climax	41%	3%	\$ 45,997.00	safety
	Buzzy	100%	3%	\$ 34,652.00	styling
Sports	Camini	100%	4%	\$ 24,144.00	styling
Minivan	Euro	52%	8%	\$ 26,528.00	quality
	Awesome	48%	7%	\$ 21,149.00	quality
Utility	Detonka	56%	9%	\$ 19,572.00	styling
	Estruck	44%	7%	\$ 21,843.00	performance

Part 2: Market research data

Focus groups overview

Customer	Retail Sales (mill.)	Unit Sales (000's)	%Chg (units)
1E \$	\$5,409	435	-9%
1T \$	\$7,377	357	+7%
2E \$	\$7,241	483	+4%
2F \$	\$21,580	988	+4%
2M \$	\$4,256	193	+7%
3S \$	\$5,881	214	+5%
3T \$	\$5,829	299	+5%
3U \$	\$7,247	338	+5%
4F \$	\$7,158	247	+4%
4L \$	\$4,741	115	+4%
5L \$	\$5,914	165	+4%
5U \$	\$11,281	449	+9%
Total	\$93,914	4,283	+3%

Focus group studies (from Focus groups overview table)

1E: Value Seekers - Economy

	Unit Share	Class Fit	Size	Price	Perf	Int	Styl	Safe (Hot)	Qua (Hot)
Delite	57%	Economy good	5 good	\$11k best	best	1 worst	1 avg.	1 worst	1 worst
Alec	41%	Economy good	14 big	\$15k worst	good	2 best	1 avg.	3 best	2 best

1T: Value Seekers - Truck

	Unit Share	Class Fit	Size	Price	Perf (Hot)	Int	Styl	Safe	Qua (Hot)
Estruck	62%	Truck good	75 too small	\$21k worst	best	1 avg.	1 avg.	1 avg.	2 best
Detonka	26%	Truck good	66 too small	\$19k best	good	1 avg.	1 avg.	1 avg.	1 worst

2E: Families - Economy

	Unit Share	Class Fit	Size	Price	Perf	Int	Styl	Safe (Hot)	Qua (Hot)
Alec	69%	Economy good	14 small	\$15k good	good	2 avg.	1 poor	3 good	2 avg.
Delite	14%	Economy good	5 too small	\$11k best	good	1 poor	1 poor	1 worst	1 avg.
Efizz	10%	Family ok	35 big	\$18k avg.	good	1 poor	1 poor	2 avg.	1 avg.
Alfa	3%	Family ok	28 good	\$23k avg.	good	2 avg.	1 poor	3 good	2 avg.
Defy	2%	Family ok	43 big	\$24k avg.	good	2 avg.	1 poor	3 good	2 avg.
Cafav	1%	Family ok	49 big	\$29k poor	good	4 good	2 avg.	2 avg.	2 avg.
Boffo	0%	Family ok	49 big	\$32k worst	poor	4 good	3 avg.	2 avg.	2 avg.

2F: Families - Family

	Unit Share	Class Fit	Size	Price	Perf	Int	Styl	Safe (Hot)	Qua (Hot)
Defy	34%	Family good	43 good	\$24k avg.	good	2 avg.	1 poor	3 good	2 avg.
Efizz	30%	Family good	35 good	\$18k best	good	1 worst	1 poor	2 avg.	1 worst
Alfa	24%	Family good	28 too small	\$23k avg.	good	2 avg.	1 poor	3 good	2 avg.
Cafav	4%	Family good	49 big	\$29k poor	good	4 good	2 avg.	2 avg.	2 avg.
Boffo	1%	Family good	49 big	\$32k worst	good	4 good	3 avg.	2 avg.	2 avg.

2M: Families - Minivan

	Unit Share	Class Fit	Size	Price	Perf	Int	Styl	Safe (Hot)	Qua (Hot)
Camini	63%	Minivan good	82 big	\$23k worst	good	2 best	1 avg.	2 best	1 avg.
Estruck	9%	Truck poor	75 good	\$21k avg.	poor	1 avg.	1 avg.	1 avg.	2 best
Detonka	7%	Truck poor	66 too small	\$19k best	good	1 avg.	1 avg.	1 avg.	1 avg.

3S: Singles - Sports

	Unit Share	Class Fit	Size	Price	Perf (Hot)	Int	Styl (Hot)	Safe	Qua
Buzzy	42%	Sports good	54 big	\$33k worst	good	3 avg.	3 avg.	2 avg.	3 best
Defy	11%	Family poor	43 big	\$24k avg.	good	2 avg.	1 poor	3 good	2 avg.
Alfa	10%	Family poor	28 small	\$23k avg.	good	2 avg.	1 poor	3 good	2 avg.
Awesome	8%	Utility poor	40 good	\$20k good	good	1 poor	1 poor	1 worst	1 avg.
Efizz	6%	Family poor	35 good	\$18k best	good	1 poor	1 poor	2 avg.	1 avg.
Cafav	6%	Family poor	49 big	\$29k poor	good	4 good	2 avg.	2 avg.	2 avg.
Boffo	5%	Family poor	49 big	\$32k poor	good	4 good	3 avg.	2 avg.	2 avg.

3T: Singles - Truck

	Unit Share	Class Fit	Size	Price	Perf (Hot)	Int	Styl (Hot)	Safe	Qua
Detonka	74%	Truck good	66 good	\$19k best	good	1 avg.	1 avg.	1 avg.	1 worst
Estruck	13%	Truck good	75 big	\$21k good	avg.	1 avg.	1 avg.	1 avg.	2 avg.
Buzzy	1%	Sports ok	54 too small	\$33k worst	good	3 best	3 best	2 avg.	3 best

3U: Singles - Utility

	Unit Share	Class Fit	Size	Price	Perf (Hot)	Int	Styl (Hot)	Safe	Qua
Awesome	50%	Utility good	40 too small	\$20k avg.	good	1 poor	1 poor	1 poor	1 poor
Euro	18%	Utility good	59 big	\$25k avg.	good	1 poor	3 avg.	1 poor	1 poor
Efizz	7%	Family poor	35 too small	\$18k good	good	1 poor	1 poor	2 avg.	1 poor
Detonka	6%	Truck poor	66 big	\$19k good	good	1 poor	1 poor	1 poor	1 poor
Alec	5%	Economy poor	14 too small	\$15k best	good	2 avg.	1 poor	3 avg.	2 avg.
Buzzy	2%	Sports ok	54 good	\$33k worst	good	3 avg.	3 avg.	2 avg.	3 avg.

4F: High Income - Family

	Unit Share	Class Fit	Size	Price	Perf	Int (Hot)	Styl (Hot)	Safe (Hot)	Qua
Cafav	44%	Family good	49 small	\$29k avg.	good	4 good	2 avg.	2 avg.	2
Boffo	20%	Family good	49 small	\$32k avg.	good	4 good	3 avg.	2 avg.	2
Defy	10%	Family good	43 too small	\$24k avg.	good	2 avg.	1 poor	3 good	2 avg.
Alfa	6%	Family good	28 too small	\$23k good	good	2 avg.	1 poor	3 good	2 avg.
Beaut	5%	Luxury ok	62 big	\$36k avg.	good	2 avg.	4 best	2 avg.	2 avg.
Efizz	3%	Family good	35 too small	\$18k best	good	1 poor	1 poor	2 avg.	1 avg.
Climax	2%	Luxury ok	74 big	\$44k worst	good	4 good	2 avg.	2 avg.	2 avg.

4L: High Income - Luxury

	Unit Share	Class Fit	Size	Price	Perf	Int (Hot)	Styl (Hot)	Safe	Qua
Climax	73%	Luxury good	74 good	\$44k worst	good	4 best	2 worst	2 avg.	2 avg.
Beaut	20%	Luxury good	62 too small	\$36k best	good	2 worst	4 best	2 avg.	2 avg.

5L: Enterprisers - Luxury

	Unit Share	Class Fit	Size	Price	Perf (Hot)	Int	Styl (Hot)	Safe	Qua
Beaut	66%	Luxury good	62 good	\$36k avg.	good	2 worst	4 best	2 avg.	2 avg.
Climax	14%	Luxury good	74 big	\$44k worst	good	4 best	2 worst	2 avg.	2 avg.
Buzzy	8%	Sports ok	54 small	\$33k best	good	3 good	3 good	2 avg.	3 good

5U: Enterprisers - Utility

	Unit Share	Class Fit	Size	Price	Perf (Hot)	Int	Styl (Hot)	Safe	Qua
Euro	53%	Utility good	59 small	\$25k avg.	good	1 avg.	3 avg.	1 avg.	1 avg.
Awesome	16%	Utility good	40 too small	\$20k best	good	1 avg.	1 poor	1 avg.	1 avg.
Camini	6%	Minivan poor	82 big	\$23k good	good	2 avg.	1 poor	2 avg.	1 avg.
Beaut	5%	Luxury poor	62 good	\$36k worst	good	2 avg.	4 best	2 avg.	2 avg.

Vehicle sales by customer

Reports showing vehicle sales by customer for all vehicles in Stratsim

Alec - Economy

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
2E	68.6%	331	57.0%
1E	41.2%	179	30.9%
2F	2.0%	20	3.4%
3U	5.4%	18	3.1%
3T	3.1%	9	1.6%
2M	3.8%	7	1.3%
3S	3.2%	7	1.2%
1T	1.6%	6	1.0%
5U	0.5%	2	0.4%
4F	0.3%	1	0.1%
5L	0.1%	0	0.0%
4L	0.1%	0	0.0%
Total Consumer	13.6%	581	100.0%

Alfa - Family

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
2F	23.9%	236	74.8%
3S	9.7%	21	6.6%
2E	3.5%	17	5.3%
4F	5.7%	14	4.4%
3U	2.8%	10	3.1%
5U	1.1%	5	1.5%
2M	2.4%	5	1.5%
1T	1.1%	4	1.2%
3T	1.0%	3	1.0%
1E	0.3%	1	0.4%
5L	0.3%	1	0.2%
4L	0.2%	0	0.1%
Total Consumer	7.4%	315	100.0%

Boffo - Family

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
4F	19.6%	48	49.4%
2F	1.2%	12	12.2%
3S	5.4%	12	11.8%
5U	2.3%	11	10.8%
5L	3.6%	6	6.0%
3U	0.8%	3	2.9%
4L	1.5%	2	1.8%
2M	0.9%	2	1.7%
2E	0.2%	1	1.2%
1T	0.3%	1	1.2%
3T	0.4%	1	1.1%
Total Consumer	2.3%	98	100.0%

Awesome - Utility

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
3U	50.1%	170	54.7%
5U	16.2%	73	23.5%
2F	3.5%	35	11.2%
3S	7.7%	16	5.3%
1T	1.5%	5	1.7%
2M	2.4%	5	1.5%
3T	1.3%	4	1.2%
2E	0.2%	1	0.4%
4F	0.4%	1	0.3%
5L	0.3%	0	0.2%
4L	0.1%	0	0.0%
Total Consumer	7.2%	310	100.0%

Beaut - Luxury

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
5L	66.1%	109	63.3%
5U	5.1%	23	13.2%
4L	19.7%	23	13.2%
4F	4.7%	12	6.8%
3U	0.4%	1	0.8%
3S	0.6%	1	0.8%
1T	0.3%	1	0.6%
2M	0.5%	1	0.6%
3T	0.2%	1	0.4%
2F	0.0%	0	0.2%
2E	0.0%	0	0.0%
Total Consumer	4.0%	172	100.0%

Camini - Minivan

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
2M	63.4%	122	67.4%
5U	6.0%	27	14.8%
1T	2.7%	10	5.4%
4F	2.0%	5	2.7%
2F	0.4%	4	2.2%
3U	1.0%	4	1.9%
3S	1.5%	3	1.7%
3T	0.9%	3	1.4%
5L	1.3%	2	1.2%
4L	1.4%	2	0.9%
2E	0.1%	1	0.3%
Total Consumer	4.2%	181	100.0%

Climax - Luxury

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
4L	72.9%	84	70.7%
5L	13.5%	22	18.7%
5U	1.1%	5	4.2%
4F	1.9%	5	3.9%
3U	0.3%	1	0.7%
1T	0.1%	1	0.4%
2M	0.3%	1	0.4%
3S	0.2%	0	0.4%
3T	0.1%	0	0.3%
2F	0.0%	0	0.1%
2E	0.0%	0	0.0%
Total Consumer	2.8%	119	100.0%

Defy - Family

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
2F	33.5%	331	79.4%
4F	9.7%	24	5.8%
3S	11.1%	24	5.7%
3U	3.1%	11	2.5%
2E	1.7%	8	2.0%
5U	1.4%	6	1.5%
2M	2.3%	5	1.1%
1T	1.0%	3	0.8%
3T	0.9%	3	0.7%
1E	0.2%	1	0.2%
5L	0.5%	1	0.2%
4L	0.2%	0	0.1%
Total Consumer	9.7%	417	100.0%

Delite - Economy

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
1E	57.5%	250	75.0%
2E	14.3%	69	20.7%
3U	1.1%	4	1.1%
2F	0.4%	4	1.1%
3T	0.6%	2	0.6%
2M	0.7%	1	0.4%
1T	0.4%	1	0.4%
3S	0.6%	1	0.4%
5U	0.1%	1	0.2%
4F	0.1%	0	0.1%
5L	0.0%	0	0.0%
4L	0.0%	0	0.0%
Total Consumer	7.8%	333	100.0%

Detonka - Truck

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
3T	73.8%	221	58.4%
1T	26.2%	94	24.8%
3U	6.3%	21	5.6%
5U	3.2%	15	3.8%
2M	6.8%	13	3.4%
2F	0.7%	7	1.7%
3S	1.7%	4	0.9%
4F	0.7%	2	0.4%
2E	0.3%	2	0.4%
5L	0.5%	1	0.2%
1E	0.1%	0	0.1%
4L	0.2%	0	0.1%
Total Consumer	8.8%	378	100.0%

Effiz - Family

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
2F	30.2%	298	71.3%
2E	10.1%	49	11.7%
3U	6.5%	22	5.3%
3S	6.3%	13	3.2%
4F	3.4%	8	2.0%
3T	2.8%	8	2.0%
2M	3.4%	7	1.6%
5U	1.0%	5	1.1%
1T	1.2%	4	1.0%
1E	0.6%	2	0.6%
5L	0.3%	0	0.1%
4L	0.1%	0	0.0%
Total Consumer	9.8%	418	100.0%

Estruck - Truck

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
1T	62.0%	221	73.9%
3T	12.6%	38	12.6%
2M	8.7%	17	5.6%
5U	3.4%	15	5.2%
3U	0.8%	3	1.0%
3S	1.1%	2	0.8%
5L	0.6%	1	0.3%
4F	0.4%	1	0.3%
2F	0.1%	1	0.2%
4L	0.5%	1	0.2%
Total Consumer	7.0%	299	100.0%

Euro - Utility

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
5U	53.0%	238	72.2%
3U	18.0%	61	18.5%
4F	2.8%	7	2.1%
3S	3.2%	7	2.1%
2F	0.4%	4	1.1%
2M	1.9%	4	1.1%
5L	1.8%	3	0.9%
1T	0.8%	3	0.9%
3T	1.0%	3	0.9%
2E	0.1%	1	0.2%
4L	0.3%	0	0.1%
Total Consumer	7.7%	330	100.0%

Cafav - Family

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
4F	44.2%	109	57.2%
2F	3.7%	36	18.9%
3S	5.8%	12	6.4%
5U	2.6%	12	6.2%
5L	3.4%	6	2.9%
3U	1.4%	5	2.4%
2E	0.7%	3	1.6%
2M	1.4%	3	1.4%
1T	0.5%	2	0.9%
4L	1.4%	2	0.8%
3T	0.5%	1	0.7%
1E	0.1%	0	0.3%
Total Consumer	4.5%	191	100.0%

Buzzy - Sports

Consumer Customer	Unit Share	Units (000's)	Pct of Sales
3S	42.2%	90	64.1%
5L	7.6%	13	8.9%
5U	2.8%	13	8.9%
4F	4.2%	10	7.5%
3U	1.7%	6	4.2%
3T	0.9%	3	1.9%
2M	0.9%	2	1.3%
4L	1.3%	1	1.1%
2F	0.1%	1	1.0%
1T	0.4%	1	0.9%
2E	0.1%	0	0.3%
1E	0.0%	0	0.1%
Total Consumer	3.3%	141	100.0%

Part 3: Consumer information

New customers

Research has identified the top 3 potential new customer segments.

Cust.	Segment	Vehicle Class	Est. Units (000's)	Exp. Price Range	Approx. Veh. Size	Most Important Attribute
4M	High Income(4)	Minivan	170-250	\$28-42k	55-75	Interior
4S	High Income(4)	Sports	30-50	\$55-83k	45-65	Styling
5A	Enterprisers(5)	AEV	60-100	\$24-36k	30-50	Styling

Consumer segments

Segment	Units (000's)	Chg	A	B	C	D	E
Value Seekers(1)	792	-3%	24.7%	0.4%	1.6%	44.2%	29.1%
Families(2)	1,663	+4%	39.4%	1.2%	10.2%	26.4%	22.8%
Singles(3)	851	+5%	30.3%	13.8%	3.4%	34.0%	18.5%
High Income(4)	363	+4%	4.5%	26.6%	56.9%	7.3%	4.8%
Enterprisers(5)	614	+7%	13.2%	28.2%	12.0%	3.8%	42.7%
Total	4,283	+3%	28.2%	9.6%	11.5%	26.3%	24.4%

Consumer customers

Customer	Mfr Sales	Retail Sales	Unit Sales	%Chg (units)	Forecast (units)	Leader
1E \$	\$5,187	\$5,409	435	-9%	436	Delite
1T \$	\$6,718	\$7,377	357	+7%	374	Estruck
2E \$	\$6,891	\$7,241	483	+4%	489	Alec
2F \$	\$20,014	\$21,580	988	+4%	1,045	Defy
2M \$	\$3,947	\$4,256	193	+7%	190	Camini
3S \$	\$5,432	\$5,881	214	+5%	220	Buzzy
3T \$	\$5,314	\$5,829	299	+5%	313	Detonka
3U \$	\$6,547	\$7,247	338	+5%	352	Awesome
4F \$	\$6,695	\$7,158	247	+4%	255	Cafav
4L \$	\$4,205	\$4,741	115	+4%	113	Climax
5L \$	\$5,299	\$5,914	165	+4%	164	Beaut
5U \$	\$10,189	\$11,281	449	+9%	465	Euro
Total	\$86,436	\$93,914	4,283	+3%	4,415	

Note: Dollar amounts are in millions, units in thousands. Cost of Customer Detail is \$25 thousand per report.

See the following pages for information about each of the customer segments (1E to 5U)

Customer segments overview

Customer:	1E	1T	2E	2F
Desired class:	Economy	Truck	Primary=Economy Secondary=Family	Family
Units purchased (000's):	435	357	483	988
Chg. from prev. year:	-9%	7%	4%	4%
Projected demand:	436	374	489	1045
Expected price range:	\$9.000-\$13.000	\$17.000-\$25.000	\$14.000-\$20.000	\$18.000-\$28.000
Preferred size range:	1-20	80-100	15-35	30-50
Preferred engine (hp):	75-125	250-300	100-150	125-175
Hot buttons:	quality, safety	quality, performance	safety, quality	safety, quality
Price sensitivity:	high	high	high	medium
Customer:	2M	3S	3T	3U
Desired class:	Minivan	Sports	Primary=Truck Secondary=Sports	Primary=Utility Secondary=Sports
Units purchased (000's):	193	214	299	338
Chg. from prev. year:	7%	5%	5%	5%
Projected demand:	190	220	313	352
Expected price range:	\$20.000-\$30.000	\$23.000-\$35.000	\$15.000-\$23.000	\$16.000-\$24.000
Preferred size range:	65-85	25-45	55-75	40-60
Preferred engine (hp):	155-205	175-225	175-225	155-205
Hot buttons:	safety, quality	performance, styling	performance, styling	performance, styling
Price sensitivity:	medium	low	low	low
Customer:	4F	4L	5L	5U
Desired class:	Primary=Family Secondary=Luxury	Luxury	Primary=Luxury Secondary=Sports	Utility
Units purchased (000's):	247	115	165	449
Chg. from prev. year:	4%	4%	4%	9%
Projected demand:	255	113	164	465
Expected price range:	\$26.000-\$40.000	\$40.000-\$60.000	\$34.000-\$50.000	\$23.000-\$35.000
Preferred size range:	45-65	65-85	55-75	55-75
Preferred engine (hp):	165-215	200-250	225-275	225-275
Hot buttons:	interior, safety	interior, styling	styling, performance	styling, performance
Price sensitivity:	low	low	low	low

Customer detail (from Consumer customers table)

Customer: 1E (All Regions)
 Desired Class: [Economy](#)
 Units Purchased (000's): 435
 Chg. from Prev. Year: -9%
 Projected Demand: 436
 Expected Price Range: \$9,000-\$13,000
 Preferred Size Range: 1-20
 Preferred Engine (hp): 75-125
 Hot Buttons: Quality, Safety
 Price Sensitivity: High

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Delite	Economy	57%	5	\$11,293	85	47%	\$40	Quality	\$20
Alec	Economy	41%	14	\$15,351	135	50%	\$40	Styling	\$20
Other		1%							

Customer: 1T (All Regions)
 Desired Class: [Truck](#)
 Units Purchased (000's): 357
 Chg. from Prev. Year: +7%
 Projected Demand: 374
 Expected Price Range: \$17,000-\$25,000
 Preferred Size Range: 80-100
 Preferred Engine (hp): 250-300
 Hot Buttons: Quality, Perform
 Price Sensitivity: High

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Estruck	Truck	62%	75	\$21,843	280	57%	\$60	Perform	\$20
Detonka	Truck	26%	66	\$19,572	185	56%	\$60	Styling	\$30
Other		12%							

Customer: 2E (All Regions)
 Desired Class: Primary=[Economy](#), Secondary=[Family](#)
 Units Purchased (000's): 483
 Chg. from Prev. Year: +4%
 Projected Demand: 489
 Expected Price Range: \$14,000-\$20,000
 Preferred Size Range: 15-35
 Preferred Engine (hp): 100-150
 Hot Buttons: Safety, Quality
 Price Sensitivity: High

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Alec	Economy	69%	14	\$15,351	135	49%	\$40	Styling	\$20
Delite	Economy	14%	5	\$11,293	85	46%	\$40	Quality	\$20
Efizz	Family	10%	35	\$18,869	140	57%	\$80	Styling	\$40
Alfa	Family	3%	28	\$24,084	165	57%	\$80	Interior	\$40
Defy	Family	2%	43	\$25,921	165	58%	\$80	Styling	\$40
Cafav	Family	1%	49	\$31,361	165	51%	\$60	Styling	\$40
Bofo	Family	0%	49	\$35,003	200	50%	\$60	Quality	\$40
Other		1%							

Customer: 2F (All Regions)
 Desired Class: [Family](#)
 Units Purchased (000's): 988
 Chg. from Prev. Year: +4%
 Projected Demand: 1,045
 Expected Price Range: \$18,000-\$28,000
 Preferred Size Range: 30-50
 Preferred Engine (hp): 125-175
 Hot Buttons: Safety, Quality
 Price Sensitivity: Medium

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Defy	Family	34%	43	\$25,921	165	58%	\$80	Styling	\$40
Efizz	Family	30%	35	\$18,869	140	57%	\$80	Styling	\$40
Alfa	Family	24%	28	\$24,084	165	57%	\$80	Interior	\$40
Cafav	Family	4%	49	\$31,361	165	51%	\$60	Styling	\$40
Boffo	Family	1%	49	\$35,003	200	50%	\$60	Quality	\$40
Other		8%							

Customer: 2M (All Regions)
 Desired Class: [Minivan](#)
 Units Purchased (000's): 193
 Chg. from Prev. Year: +7%
 Projected Demand: 190
 Expected Price Range: \$20,000-\$30,000
 Preferred Size Range: 65-85
 Preferred Engine (hp): 155-205
 Hot Buttons: Safety, Quality
 Price Sensitivity: Medium

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Camini	Minivan	63%	82	\$24,144	200	45%	\$40	Styling	\$30
Estruck	Truck	9%	75	\$21,843	280	50%	\$60	Perform	\$20
Detonka	Truck	7%	66	\$19,572	185	50%	\$60	Styling	\$30
Other		21%							

Customer: 3S (All Regions)
 Desired Class: [Sports](#)
 Units Purchased (000's): 214
 Chg. from Prev. Year: +5%
 Projected Demand: 220
 Expected Price Range: \$23,000-\$35,000
 Preferred Size Range: 25-45
 Preferred Engine (hp): 175-225
 Hot Buttons: Perform, Styling
 Price Sensitivity: Low

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Buzzy	Sports	42%	54	\$34,652	190	59%	\$40	Styling	\$30
Defy	Family	11%	43	\$25,921	165	54%	\$80	Styling	\$40
Alfa	Family	10%	28	\$24,084	165	53%	\$80	Interior	\$40
Awesome	Utility	8%	40	\$21,149	220	49%	\$60	Quality	\$30
Efizz	Family	6%	35	\$18,869	140	53%	\$80	Styling	\$40
Cafav	Family	6%	49	\$31,361	165	48%	\$60	Styling	\$40
Boffo	Family	5%	49	\$35,003	200	46%	\$60	Quality	\$40
Other		12%							

Customer: 3T (All Regions)
 Desired Class: Primary=[Truck](#), Secondary=[Sports](#)
 Units Purchased (000's): 299
 Chg. from Prev. Year: +5%
 Projected Demand: 313
 Expected Price Range: \$15,000-\$23,000
 Preferred Size Range: 55-75
 Preferred Engine (hp): 175-225
 Hot Buttons: Perform, Styling
 Price Sensitivity: Low

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Detonka	Truck	74%	66	\$19,572	185	53%	\$60	Styling	\$30
Estruck	Truck	13%	75	\$21,843	280	53%	\$60	Perform	\$20
Buzzy	Sports	1%	54	\$34,652	190	45%	\$40	Styling	\$30
Other		13%							

Customer: 3U (All Regions)
 Desired Class: Primary=[Utility](#), Secondary=[Sports](#)
 Units Purchased (000's): 338
 Chg. from Prev. Year: +5%
 Projected Demand: 352
 Expected Price Range: \$16,000-\$24,000
 Preferred Size Range: 40-60
 Preferred Engine (hp): 155-205
 Hot Buttons: Perform, Styling
 Price Sensitivity: Low

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Awesome	Utility	50%	40	\$21,149	220	56%	\$60	Quality	\$30
Euro	Utility	18%	59	\$26,528	200	50%	\$40	Quality	\$30
Efizz	Family	7%	35	\$18,869	140	55%	\$80	Styling	\$40
Detonka	Truck	6%	66	\$19,572	185	50%	\$60	Styling	\$30
Alec	Economy	5%	14	\$15,351	135	48%	\$40	Styling	\$20
Buzzy	Sports	2%	54	\$34,652	190	47%	\$40	Styling	\$30
Other		12%							

Customer: 4F (All Regions)
 Desired Class: Primary=[Family](#), Secondary=[Luxury](#)
 Units Purchased (000's): 247
 Chg. from Prev. Year: +4%
 Projected Demand: 255
 Expected Price Range: \$26,000-\$40,000
 Preferred Size Range: 45-65
 Preferred Engine (hp): 165-215
 Hot Buttons: Interior, Safety
 Price Sensitivity: Low

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Cafav	Family	44%	49	\$31,361	165	51%	\$60	Styling	\$40
Boffo	Family	20%	49	\$35,003	200	48%	\$60	Quality	\$40
Defy	Family	10%	43	\$25,921	165	57%	\$80	Styling	\$40
Alfa	Family	6%	28	\$24,084	165	58%	\$80	Interior	\$40
Beaut	Luxury	5%	62	\$38,385	240	56%	\$80	Interior	\$20
Efizz	Family	3%	35	\$18,869	140	56%	\$80	Styling	\$40
Climax	Luxury	2%	74	\$45,997	240	53%	\$80	Safety	\$20
Other		11%							

Customer: 4L (All Regions)
 Desired Class: [Luxury](#)
 Units Purchased (000's): 115
 Chg. from Prev. Year: +4%
 Projected Demand: 113
 Expected Price Range: \$40,000-\$60,000
 Preferred Size Range: 65-85
 Preferred Engine (hp): 200-250
 Hot Buttons: Interior, Styling
 Price Sensitivity: Low

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Climax	Luxury	73%	74	\$45,997	240	54%	\$80	Safety	\$20
Beaut	Luxury	20%	62	\$38,385	240	60%	\$80	Interior	\$20
Other		7%							

Customer: 5L (All Regions)
 Desired Class: Primary=[Luxury](#), Secondary=[Sports](#)
 Units Purchased (000's): 165
 Chg. from Prev. Year: +4%
 Projected Demand: 164
 Expected Price Range: \$34,000-\$50,000
 Preferred Size Range: 55-75
 Preferred Engine (hp): 225-275
 Hot Buttons: Styling, Perform
 Price Sensitivity: Low

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Beaut	Luxury	66%	62	\$38,385	240	55%	\$80	Interior	\$20
Climax	Luxury	14%	74	\$45,997	240	52%	\$80	Safety	\$20
Buzzy	Sports	8%	54	\$34,652	190	45%	\$40	Styling	\$30
Other		13%							

Customer: 5U (All Regions)
 Desired Class: [Utility](#)
 Units Purchased (000's): 449
 Chg. from Prev. Year: +9%
 Projected Demand: 465
 Expected Price Range: \$23,000-\$35,000
 Preferred Size Range: 55-75
 Preferred Engine (hp): 225-275
 Hot Buttons: Styling, Perform
 Price Sensitivity: Low

Vehicle	Class	Unit Share	Size	MSRP	Eng (HP)	Aware-ness	Adv (mill)	Adv Theme	Promo (mill)
Euro	Utility	53%	59	\$26,528	200	57%	\$40	Quality	\$30
Awesome	Utility	16%	40	\$21,149	220	64%	\$60	Quality	\$30
Camini	Minivan	6%	82	\$24,144	200	42%	\$40	Styling	\$30
Beaut	Luxury	5%	62	\$38,385	240	52%	\$80	Interior	\$20
Other		20%							

HANDBOOK 3

Production cost information

Cost information for all vehicle classes available for manufacturing has been integrated into the *Amazing cars Ltd.* Cost calculator. This calculator is now accessible in an Excel sheet.

You should save all of your actions in the cost calculator after working on the case. You will see that cost of manufacturing varies, depending on which vehicle class you are in, and also how you modify each vehicle.

Below is a table showing the development of new vehicles.

1. New vehicle development cost

Type and size of vehicle being manufactured determines the end cost. For every vehicle type manufactured, a **development cost** has to be paid. This amount has to be paid, regardless of how many units are manufactured. Development cost for *Amazing cars* will be divided over a five year period and varies depending on vehicle class and size of vehicles as the table shows.

Table 1.				
Type	Car size range	Engine range	Base vehicle size used for development cost	Development cost (mill)
<i>Economy</i>	1-35	50-175	1	\$369
<i>Family</i>	25-65	120-250	25	\$615
<i>Luxury</i>	40-80	180-300	40	\$1230
<i>Sport</i>	10-65	130-300	80	\$923
<i>AEV</i>	5-70	75-200	5	\$871
<i>Minivan</i>	45-90	140-250	45	\$1281
<i>Utility</i>	25-95	120-300	25	\$615
<i>Truck</i>	25-95	120-300	25	\$1076

Development cost is linked with car size. Each car size unit added increases the development cost.

Development cost	Goes up by \$10 mill for each car size unit added to base car size
-------------------------	---

1.1 Vehicle development cost example

Develop a *Utility* vehicle of size 95, engine (hp) 160, Interior 2, Styling 1, Safety 2 and Quality 3.

Development cost

$((95 \text{ (size)} - 25 \text{ (base size)}) * \$10 \text{ mill}) + \$615 \text{ mill} = \$1315 \text{ millions total}$

$\$1315 / 5 \text{ years} = \$263 \text{ millions per year}$

Table 2.		
Type	Vehicle Size minimum value	Development cost (mill)
Economy	1	\$369
Family	25	\$615
Luxury	40	\$1230
Sport	80	\$923
AEV	5	\$871
Minivan	45	\$1281
Utility	25	\$615
Truck	25	\$1076

Development cost	Goes up by \$10 mill for each car size unit added
------------------	---

APPENDIX H - EXPERIMENT INTRODUCTION

You will be playing a market simulation game during the next two tutorials, where you will be in a team of three students.

Your company's **primary objective** in this game **is to increase the company's profits** in the short run.

Your team's profit performance in this game will be compared to other student teams in the subject, where the team with the **highest profit** (sales revenue minus manufacturing cost, development cost and advertising cost) in the first year of launching a new product will win a **\$ 300 gift certificate** from the University bookstore (\$100 for each member of the best performing team).

You should now have received the documents needed to play the game.

To be eligible for the \$300 gift certificate you must follow the instructions carefully and hand in the Answer Sheet attached for evaluation, once completed.

The time to complete the required tasks is very limited so you must use your time wisely.

You have **35 minutes** to complete the task, a member of the research team will notify the class when timing begins.

Chief Executive Officer (CEO)

You will be playing a market simulation game during the next two tutorials, where you will be in a team of three students.

Your company's **primary objective** in this game **is to increase the company's profits** in the short run.

You will be playing the role of the **Chief Executive Officer**, who is responsible for the profitability of the company. The best performing **Chief Executive Officer** will receive **\$100 gift certificate** from the University bookstore. Your performance will be assessed on **how much profit you are able to generate** for the company in the first year of launching a new product.

You will have access to various company information as part of your role.

You should now have received the documents needed to play the game.

To be eligible for the \$100 gift certificate you must follow the instructions carefully and hand in the Answer Sheet attached for evaluation, once completed.

The time to complete the required tasks is very limited so you must use your time wisely.

You have **35 minutes** to complete the task, a member of the research team will notify the class when timing begins.

Chief Marketing Officer (CMO)

You will be playing a market simulation game during the next two tutorials, where you will be in a team of three students.

Your company's **primary objective** in this game **is to increase the company's profits** in the short run.

You will be playing the role of the **Chief Marketing Officer**, who is responsible for the market share of the company. The best performing **Chief Marketing Officer** will receive **\$100 gift certificate** from the University bookstore. Your performance will be assessed on how much you can improve the **market share** of the company in the first year of launching a new product (units sold x price per unit).

You will have access to market research data as part of your role.

You should now have received the documents needed to play the game.

To be eligible for the \$100 gift certificate you must follow the instructions carefully and hand in the Answer Sheet attached for evaluation, once completed.

The time to complete the required tasks is very limited so you must use your time wisely.

You have **35 minutes** to complete the task, a member of the research team will notify the class when timing begins.

Chief Technical Officer (CTO)

You will be playing a market simulation game during the next two tutorials, where you will be in a team of three students.

Your company's **primary objective** in this game **is to increase the company's profits** in the short run.

You will be playing the role of the **Chief Technical Officer**, who is responsible for production within the company. The best performing **Chief Technical Officer** will receive **\$100 gift certificate** from the University bookstore. Your performance will be assessed on **how low you can keep the cost of manufacturing** a new product (cost of production and development cost).

You will have access to a computer cost calculator as part of your role.

You should now have received the documents needed to play the game.

To be eligible for the \$100 gift certificate you must follow the instructions carefully and hand in the Answer Sheet attached for evaluation, once completed.

The time to complete the required tasks is very limited so you must use your time wisely.

You have **35 minutes** to complete the task, a member of the research team will notify the class when timing begins.

APPENDIX I - TARGETING CHECKLISTS

Discipline checklist

You work for *Amazing cars*. *Amazing cars* manufactures cars. You as a team are responsible for deciding which market segment to target with which kind of car in view of **maximizing the profit** of *Amazing cars*. You are competing against other teams in this market.

You have 35 minutes to complete this task. The checklist below is the key to successfully completing this task on time. Please follow the checklist step by step and tick the box every time a step is completed.

You will not be eligible for the price if you do not complete the Answer Sheet.

The criteria below will assist you in assessing vehicle classes.

Consider each criterion in relation to each vehicle class and tick the box next to each criterion when you have done so.

For some criteria you will find additional information in the three page description and booklets. Note also that there is an excel cost calculator available to you on your computer.

CHECKLIST					
Vehicle classes:	Economy	Sports	Minivan	Truck	Alternative energy
I. Size & Growth					
Size: Market potential, current market penetration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Growth: Past growth, forecasts of technology change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
II. Structural Characteristics					
Competition: Barriers to entry, barriers to exit, position of competitors, ability to retaliate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Segment saturation: Gaps in the market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protectability: Patentability of products, barriers to entry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental risk: Economic, political, and technological change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
III. Product-Market Fit					
Fit: Coherence with company's strengths and image	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relationships with other segments: Synergy, cost interactions, image transfers, cannibalization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profitability: Entry costs, margin levels, return on investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Coordination checklist

You work for *Amazing cars*. *Amazing cars* manufactures cars. You as a team are responsible for deciding which market segment to target with which kind of car in view of **maximizing the profit** of *Amazing cars*. You are competing against other teams in this market.

You have 35 minutes to complete this task. The checklist below is the key to successfully completing this task on time. Please follow the checklist step by step and tick the box every time a step is completed.

You will not be eligible for the price if you do not complete the Answer Sheet.

Note also that there is an excel cost calculator available to you on your computer.

<h1>CHECKLIST</h1>	
7 STEPS TO FOLLOW	CHECK BOX WHEN COMPLETED
STEP 1 Introduce yourself to the team by saying your name and what you are particularly good at.	<input type="checkbox"/>
STEP 2 Select one team member who will be responsible for ensuring that all the steps on this checklist will be completed and boxes ticked. Person responsible sign here: _____	<input type="checkbox"/>
STEP 3 Take a look at the two page answer sheet so you understand your deliverables.	<input type="checkbox"/>
STEP 4 Ensure that everyone in your team understands that your team objective is to maximize profit.	<input type="checkbox"/>
STEP 5 Get an overview of the remaining steps of this checklist, before continuing with STEP 6. This will give you an idea about how to analyse the information in this game.	<input type="checkbox"/>
STEP 6 Read the three page case description and then get back to the checklist as soon as possible.	<input type="checkbox"/>
STEP 7 Now notify the researcher that you have reached STEP 7 and he will provide you with additional information needed to solve the case. Use this information as indicated by the following steps.	<input type="checkbox"/>

Discipline-and-coordination checklist

You work for *Amazing cars*. *Amazing cars* manufactures cars. You as a team are responsible for deciding which market segment to target with which kind of car in view of **maximizing the profit** of *Amazing cars*. You are competing against other teams in this market.

You have 35 minutes to complete this task. The checklist below is the key to successfully completing this task on time. Please follow the checklist step by step and tick the box every time a step is completed.

You will not be eligible for the price if you do not complete the Answer Sheet.

Note also that there is an excel cost calculator available to you on your computer.

CHECKLIST	
11 STEPS TO FOLLOW	CHECK BOX WHEN COMPLETED
STEP 1 Introduce yourself to the team by saying your name and what you are particularly good at.	<input type="checkbox"/>
STEP 2 Select one team member who will be responsible for ensuring that all the steps on this checklist will be completed and boxes ticked. Person responsible sign here: _____	<input type="checkbox"/>
STEP 3 Take a look at the two page answer sheet so you understand your deliverables.	<input type="checkbox"/>
STEP 4 Ensure that everyone in your team understands that your team objective is to maximize profit.	<input type="checkbox"/>
STEP 5 Get an overview of the remaining steps of this checklist, before continuing with STEP 6. This will give you an idea about how to analyse the information in this game.	<input type="checkbox"/>
STEP 6 Read the three page case description and then get back to the checklist as soon as possible.	<input type="checkbox"/>
STEP 7 Now notify the researcher that you have reached STEP 7 and he will provide you with additional information needed to solve the case. Use this information as indicated by the following steps.	<input type="checkbox"/>

The criteria below will assist you in assessing vehicle classes.

Consider each criterion in relation to each vehicle class and tick the box next to each criterion when you have done so.

For some criteria you will find additional information in the three page description and booklets. Note also that there is an excel cost calculator available to you on your computer.

Vehicle classes:	Economy	Sports	Minivan	Truck	Alternative energy
I. Size & Growth					
Size: Market potential, current market penetration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Growth: Past growth, forecasts of technology change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
II. Structural Characteristics					
Competition: Barriers to entry, barriers to exit, position of competitors, ability to retaliate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Segment saturation: Gaps in the market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protectability: Patentability of products, barriers to entry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental risk: Economic, political, and technological change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 8 Now select the most attractive vehicle class(es). Indicate selected vehicle classes by ticking the checkboxes. Take the black marker and cross out all vehicle classes that you have not selected; cross out the entire column in the dark grey section for those vehicles; you will no longer consider those vehicle classes from now on.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 9 Assess whether your company can develop effective vehicles for the selected vehicle classes. If not, cross out those vehicle classes you cannot serve with the black marker in the grey section starting in this row; you will no longer consider those vehicle classes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The criteria listed below will assist you in assessing vehicle classes in terms of product-market fit.

Consider each criterion in relation to each vehicle class and tick the box next to each criterion when you have done so.

For some criteria you will find additional information in the three page description and booklets. Note also that there is an excel cost calculator available to you on your computer.

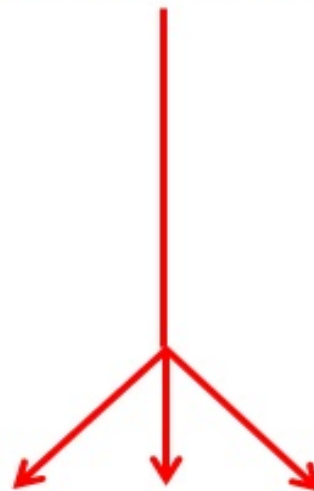
Vehicle classes:	Economy	Sports	Minivan	Truck	Alternative energy
III. Product-Market Fit					
Fit: Coherence with company's strengths and image	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relationships with other segments: Synergy, cost interactions, image transfers, cannibalization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profitability: Entry costs, margin levels, return on investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 10 Now select the segments you can most effectively reach and serve. Indicate the final selected vehicle class by ticking the checkbox.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 11 Enter your final vehicle class choice and product specification on the ANSWER SHEET	<input type="checkbox"/>				

APPENDIX J - COST CALCULATOR SCREENSHOTS

This is the Amazing cars Ltd. manufacturing cost calculator. This calculator enables you to assess the estimated cost of new vehicles, based on your manufacturing requirements. At the bottom of this page you see seven different tabs, where each tab stands for a vehicle type you can manufacture (except for this one, the "Welcome" tab). Selecting a tab opens up the relevant calculator, and remember that although they all look similar, costs for each product varies. You have four different colors in the calculator.

Grey	is used for static values that won't change in the calculation.
Red	is used for fixed costs for the product development cost and advertising.
Green	is used where YOU have to put in values for the calculator to work, and you have to fill in ALL green cells.
Yellow	is used for outputs of the calculation and changes depending on what you type in the green cells

Now use the tabs to assess product profits before manufacturing.



This is the calculator for the **ECONOMY** vehicle, please use the tabs at the bottom of this sheet to navigate between different vehicle types when needed. **Red** boxes give you an indication of fixed costs for this product, **green** are the features you control and **yellow** are the profit outputs of your product. Profit output is shown in \$ dollar values and can be positive and negative.

Remember that you need to fill in ALL **green** cells for the calculator to work

Unit cost calculator

Fixed base cost	\$ 9,242.00	Minimum value	Maximum value
Car size		1	35
Horsepower		50	175
Interior		1	5
Styling		1	5
Safety		1	4
Quality		1	6
Unit cost	\$ 7,026.00		
		Minimum value	Maximum value
Retail price		\$ 5,000.00	\$ 100,000.00
10% of the retail price will go to car dealers as selling fee before calculating profits			
Profit per unit	-\$ 7,026.00		

Information box

Advertising cost
Here you should put in the amount you want to invest in advertising your new product (choose amount between \$0 and \$1,000,000,000).

Total profit calculator

Projected sales, less development cost

Estimated number of units sold (in 000's)	
Estimated total sales profit	\$ -
Total new product development cost	\$ 359,000,000.00
Advertising cost	
Promotion cost	
Total profit first year	-\$ 359,000,000.00
Total profit first year when development cost is divided over 5 years	-\$ 71,800,000.00