

How Canadian Home Builders Construe Their Decision to Participate in a Voluntary
Environmental Program

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Submitted for the Degree of
Doctor of Business Administration

Heriot-Watt University, Edinburgh Business School

March 2013

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ABSTRACT

This research is a study of sensemaking using Personal Construct Theory to examine the constructs that Canadian home builders use when they think about their decision to participate in a voluntary environmental program (Built Green Canada). The primary data collection method is the Repertory Grid Technique. Findings from 32 interviews revealed a number of themes that decision makers used to construe and make sense of their decision to participate in the program. The most prevalent views related to seeing the decision as a function of being a leader or innovator in the industry and using the program as a marketing and sales tool. Furthermore, themes that were seen as important related to legitimacy/authenticity/integrity and environmental impact. This study also assessed which drivers/pressures were important to decision makers in making the decision to join the program. Important drivers/pressures included handling competition, appealing to customers, acquiring technical knowledge, obtaining publicity, building corporate culture/identity, and obtaining third party certifications.

Of particular significance was an emergent finding related to the level of involvement or participation in the program. This emergent finding of active and passive program participants was also analyzed and discussed leading to a model of the decision to participate in a voluntary environmental program.

This applied research is significant as it assists in refining the emergent field of environmental decision making and planning. The results are also useful for industry, voluntary environmental program organizations, and government policy makers to provide them with a better understanding of participant motivations leading to program improvements and better marketing of these programs.

ACKNOWLEDGEMENTS

There are many people who made the undertaking of this doctoral thesis possible.

Firstly, I need to express my gratitude and sincerest thanks to my supervisor, Professor Devi Jankowicz. His support, guidance and timely feedback were invaluable. I would also like to thank Dr. Andrew MacLennan for guiding me through the Research Proposal phase, and Adrian Carberry for providing me with so many answers to my process inquiries.

This study would not have been possible without the support of Built Green Canada and the Canadian Home Builders' Association – Central Alberta. The staff at these organizations provided essential background information and also helped provide access to interviewees.

I am thankful for the support from my colleagues at Red Deer College, specifically Bill Farr and Randy Nicholls who helped me practice the use of the repertory grid technique and provided for essential inter-rater reliability checks. I am also grateful to the support of my employer, Red Deer College, specifically my Dean and the Professional Development Committee.

Finally, the support of my wife, daughters and family has been critical over this six year journey of pursuing a doctoral degree.

ACADEMIC REGISTRY RESEARCH THESIS SUBMISSION



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GLOSSARY OF KEY TERMS

Built Green Canada	A voluntary environmental program that provides third party certification for homes that are built environmentally friendly in terms of construction practices and ongoing operations (e.g. energy efficient and indoor air quality) (Built Green Canada, 2011a).
Constructs	Constructs can be regarded as an individual set of perspectives people use to structure, interpret and anticipate events (Tan and Hunter, 2002; Benjafield, 2008).
Elements	The basic components of a person's attention when s/he construes an issue; the constituents being construed (Fransella et al, 2004; Jankowicz, 2004).
Going Green	Going Green is adopting a proactive environmental response including such operational activities as emissions reductions, reduced energy and resource consumption and reduced waste generation to developing longer lasting, more efficient, and/or more environmentally responsible products (Henriques and Sadorsky, 1996; Bansal and Roth, 2000; Tran, 2009).
Personal Construct Theory (PCT)	A constructivist theory of cognition developed by George Kelly in his 1955 publication <i>The Psychology of Personal Constructs</i> . Kelly's (1955) fundamental postulate and 11 corollaries provide the basis of Personal Construct Psychology (PCP) and Personal Construct Theory (PCT).
Repertory Grid Technique (RGT)	The Repertory Grid Technique is an interviewing technique designed as an instrument for eliciting personal constructs (Kelly, 1955).
Sensemaking	Sensemaking is the making of sense; the mental processes by which we attribute meaning to our experiences (Weick, 1995).
Voluntary Environmental Program (VEP)	A Voluntary Environmental Program is a voluntary code for firms with the following characteristics (Webb, 2004): <ul style="list-style-type: none"> i. commitments are not required by legislation or regulations; ii. they are agreed to by one or more individuals or organizations; iii. they are intended to influence or control behaviour; and iv. they are to be applied in a consistent manner or to reach a consistent outcome.

CHAPTER 1: INTRODUCTION

The purpose of this chapter is to provide an orientation to the research submission in terms of what the study is about, why the study is being undertaken, how the study will be conducted, and what questions the study is seeking to answer.

1.1 Background

The author's interest in this research topic emanates from both his academic and professional experiences. Undergraduate studies in biological sciences combined with graduate studies in public administration and strategic planning have provided an ongoing interest in how various government and industry programs can influence business decisions towards the environment. Professional experiences working at Alberta Municipal Affairs and Housing as well as Canada Mortgage and Housing Corporation have provided a context interest in the housing industry and new home building in particular.

This research is a study of sensemaking (Weick, 1995) in the home building industry using Personal Construct Theory (Kelly, 1955 and 1963) to examine the ways in which home builders construe their decision to participate in a voluntary environmental program.

A voluntary environmental program is defined as a voluntary code with the following characteristics (Webb, 2004):

- i. commitments are not required by legislation or regulations;
- ii. they are agreed to by one or more individuals or organizations;
- iii. they are intended to influence or control behaviour; and
- iv. they are to be applied in a consistent manner or to reach a consistent outcome.

As its name would suggest, voluntary environmental programs are not mandated and thus require a purposeful decision to join (Webb, 2004). The research takes place

within the context of the Canadian home building industry (residential construction) examining the Built Green Canada program. Built Green Canada is a voluntary environmental program that provides third party certification for homes that are built environmentally friendly in terms of construction practices and ongoing operations (e.g. energy efficient and indoor air quality) (Built Green Canada, 2011a).

Housing is a basic need. It is also a significant source of economic activity and employment. Economic activity related to the Canadian residential housing industry, including the construction, renovation and the sale of homes, represents over 20 per cent of the nation's gross domestic product (Canada Mortgage and Housing Corporation, 2010). The competitive landscape of the Canadian residential housing industry meets Porter's (1980) definition of a fragmented industry as it is comprised of a large number of small and medium sized firms that are privately owned where no single firm has a significant market share. Although they are mostly small and medium sized firms, Canadian home builders are big employers. Estimates based on Canada's 2006 Census data, place about 300,000 people working directly in the industry (Canada Mortgage and Housing Corporation, 2010). This study takes place within the context of this economically important industry.

Resource consumption for new home construction and the ongoing energy use for the operation of people's homes (i.e. heating, cooling, hot water, appliances and lighting) represent a significant impact on the environment. Global building construction is estimated to consume 40 per cent of the material and energy produced each year (Kansal and Kadambri, 2010). In a time of dwindling resources and higher energy prices, sustainability and energy conservation are growing issues.

The topic of the study has been positioned in the broader field of environmental competitiveness. It also incorporates literature from the research areas of environmental drivers/pressures, voluntary environmental programs and environmental decision making and planning. As presented in the literature review, there are a number of contradictory findings within the literature and no single theory has proven to be all encompassing and robust.

A more helpful/useful perspective on this topic is important for both business and government. A more informed understanding of the decision making process with respect to voluntary environmental programs is key since the effectiveness of these programs depends on how business responds to them (Lyon, 1999). This study is also useful for home builders, in terms of providing a more informed understanding of their environmental management decision making processes. Sustainability, resource conservation and improved energy efficiency are important to home builders and home owners alike.

1.2 Research aim, objectives and questions

The aim of the study: to understand the decision to take part in the Built Green Canada program.

The literature suggests a variety of influences on the decision to join, which can be regarded as a set of pressures, influences, and drivers towards that decision. It also suggests that sensemaking theory, and particularly, the approach taken from Kelly's personal construct psychology, provide a good way of examining how these pressures are handled, and that there is a great value in understanding the decision from the perspective of the participants themselves.

The objective is therefore to identify the ways in which participants construe and make sense of the drivers and pressures to join. This leads to two research questions in particular.

1. How do participating home builders construe and make sense of the drivers/pressures to which they are exposed in making the decision to participate in a voluntary environmental program (Built Green Canada)?

It is also intended to pay particular attention to the relative level of importance that home builders attribute to the drivers/pressures to participate which the literature suggests in general are important in voluntary environmental program participation.

Therefore, the first research question can be elaborated into a second further research question:

2. To assess the relative level of importance of the drivers/pressures identified in the literature that decision makers in the home building industry attribute to their decision to participate in a voluntary environmental program (Built Green Canada).

The rationale for the research objective and questions will be seen to arise from the Literature Review (Chapter 2) where they will be expanded on.

1.3 Research methodology

As the aim of this research is to identify and describe the construal of drivers/pressures impacting decision making to participate in a voluntary environmental program (Built Green Canada) in the home building industry, the research paradigm utilizes an empirical, phenomenological, and constructivist approach. Personal Construct Theory (Kelly, 1955 and 1963) serves as the framework for this study in terms of the identification and description of how decision makers construe the drivers/pressures to participate in the program along with how they make sense of that decision. Multiple case studies provide for face-to-face interviews with decision makers participating in the voluntary environmental program (Built Green Canada). The Repertory Grid Technique serves as the primary data collection method.

1.4 Significance

This applied research is significant as it assists in refining the emergent field of environmental decision making and planning within a specific context (by industry and geography) that has not been previously studied. The results are useful for both industry, in terms of getting a better understanding of their environmental management decision making processes, as well as voluntary environmental program organizations to better understand their members' decision making to participate, potentially leading

to program improvements and better marketing of the programs. Letters of support (see Appendix I and J) were obtained from Built Green Canada and the Canadian Home Builders' Association to improve accessibility.

1.5 Outline of the thesis

This thesis is comprised of five individual additional chapters (beyond this introduction). These chapters include:

Chapter 2 is the Literature Review. This chapter presents the context of this study by providing an overview of the Canadian home building industry and the Built Green Canada program. This Chapter also provides a critical review of the field of environmental competitiveness and the research areas of environmental drivers/pressures, voluntary environmental programs, and environmental decision making and planning. The concepts of sensemaking and personal constructs are also detailed. The literature is synthesized to present a model of the decision to participate in a voluntary environmental program. Gaps in the literature are identified and a further critical analysis of the literature is undertaken leading to the formulation of the research questions.

Chapter 3 is the Research Methodology. This chapter details the research paradigm and proposed research methodology as well as providing a rationale and justification for each in light of the research questions. Details of the pilot study, which helped refine the approach, are also included in this chapter.

Chapter 4 is the Findings and Analysis. This chapter presents the findings and details the analysis that was undertaken to address the research questions. This chapter reports on the results from the repertory grid interviews including a detailed content analysis of the constructs and elements offered by interviewees (see Glossary of Key Terms). Details of an emergent finding are also provided in this chapter.

Chapter 5 is the Discussion and Interpretations. This chapter provides a discussion and interpretation of the findings and analysis from this study including references to the literature in order to provide answers to the research questions.

Chapter 6 is the Conclusion. This chapter provides a summary of the research, details the significance of the research, its contribution to the knowledge base, its contribution to practice in the industry, its limitations, and provides suggestions for future study.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

Air, water, and land pollution have garnered considerable attention in the mainstream media as concerns over global warming, deforestation, toxic spills, and hazardous waste often make the news headlines. For decades, environmental concerns have also been on corporate and consumer agendas. Businesses are recognizing that the environment is another field in which to compete to earn competitive advantage, and as a result many businesses are 'going green'. Before outlining the content of this chapter, a definition of what it means for business to 'go green' or adopt a proactive environmental response is in order.

Henriques and Sadorsky (1996: 382) define an environmentally responsive firm as, "...a firm that has formulated an official plan for dealing with environmental issues". Hart (1997) identified three stages of environmental strategy. These include pollution prevention, product stewardship, and the development of clean technology. Bansal and Roth (2000: 717) define it as "...a set of corporate initiatives aimed at mitigating a firm's impact on the natural environment." These initiatives were described to comprise changes to the firm's products, processes, and policies. The authors listed examples that included reducing energy use and waste generation, using ecologically sustainable resources, and implementing an environmental management system/plan. Tran (2009) identified that there are both mandated (meeting environmental legislative requirements) and voluntary aspects to going green. Tran (2009: 24) also defined green management as, "...simply the rethinking, or more accurately, being more mindful of how organizations are operating (or a lack thereof) with respect to the environment." Based on this, the terms 'going green', 'environmental management' and 'proactive environmental response' can be used interchangeably to describe initiatives that a firm is taking to reduce its environmental footprint whether it is by product and/or process improvements or modifications. This wide ranging definition includes such operational activities as emissions reductions, reduced energy and resource consumption, and reduced waste generation to developing longer lasting, more efficient, and/or more

environmentally responsible products (Henriques and Sadorsky, 1996; Bansal and Roth, 2000; Tran, 2009).

The topic of this study includes ‘going green’, and it is found at that intersection or union of a number of specific research areas within the field of environmental competitiveness (see Figure 2.1). Principles from environmental competitiveness (Hart, 1995 and Porter and van der Linde, 1995) form the foundation from which this study is built. Literature from the environmental research areas of environmental drivers/pressures (Bansal and Roth, 2000) and voluntary environmental programs (Henriques and Sadorsky, 2008) are reviewed and critically analyzed leading to a discussion on environmental planning and decision making. Environmental decision making is assessed theoretically from a cognitive perspective by drawing on sensemaking theory (Weick, 1995) and Personal Construct Theory (Kelly, 1955 and 1963) in terms of developing answers to how decision makers construe the decision to participate in a voluntary environmental program.

The extant research and literature within these areas is reviewed with the intent of assessing the current state of the field, critically analyzing similarities and contradictions in findings and to help frame the research questions. As mentioned by Patton (2002), the literature review helps bring focus to a study by looking at what is already known and unknown. In addition, as Eisenhardt (1989) pointed out examining the similarities and differences in a broad range of literature is an essential starting point in conducting research. The review and critical analysis of the literature is also designed to provide the justification of the research questions this study is designed to address.

Figure 2.1 (below) was developed by the author as a personally useful approach to reflect the way in which the field is structured by its literature. It is designed to show the position of the topic in the research field at the overlap of the research areas of environmental drivers/pressures, voluntary environmental programs and environmental decision making and planning (all within the field of environmental competitiveness). This figure serves as the organizing framework for the literature review.

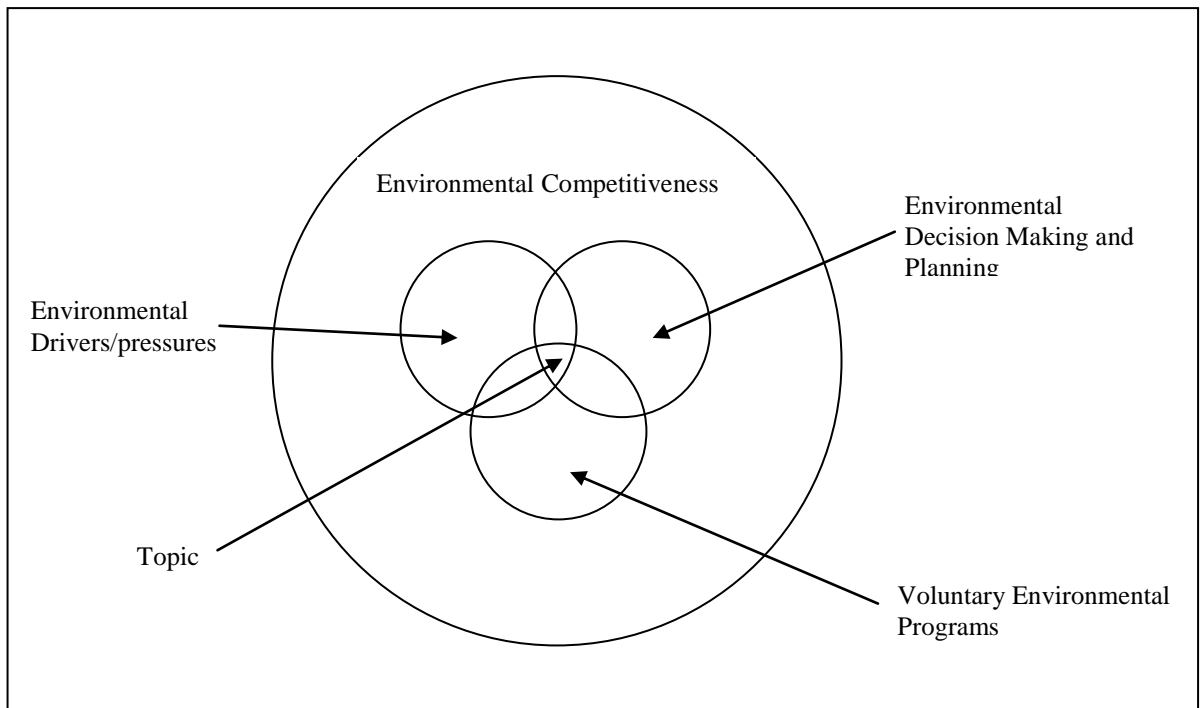


Figure 2.1: Research Field and Topic

In addition, as this study examines a specific voluntary environmental program (Built Green Canada) within the context of the Canadian Home Building Industry, a brief review of these two topics is provided to set the background for the study. Finally, the Chapter concludes with the proposed research questions and framework of analysis.

2.2. Canadian Housing Industry and Built Green Canada

This study is targeted at developing an understanding of the business decision making process driving residential home builders in Alberta (Canada) to participate in the Built Green Canada program (a voluntary third party environmental certification program for new homes). This constructivist study is situated in the field of environmental competitiveness encompassing the research areas of environmental drivers/pressures, voluntary environmental programs and environmental decision making. While much of the literature applies in general, this study takes place within the context of the Canadian home building industry.

A basic human need, a driver of economic growth, and a significant source of global energy and resource use, housing and the interrelated new home building industry impacts us all in some way. In Canada, housing related activity including the construction, renovation and the sale of homes represents over 20 per cent of Canada's gross domestic product (GDP), and housing consumption related spending accounts for over 13 per cent of GDP (Canada Mortgage and Housing Corporation, 2010). The competitive landscape of Canadian housing industry is fragmented. According to Porter (1980) a fragmented industry is typically comprised of a large number of small and medium sized firms that are often privately owned where no single firm has a significant market share. According to Canada's national housing agency, Canada Mortgage and Housing Corporation (2010), there are approximately 71,000 residential construction firms and 158,000 specialty trade contractors in operation in 2009. The home building industry in general possesses a number of underlying economic factors that can result in industry fragmentation that were identified by Porter (1980). These include low overall entry barriers, high inventory costs, diseconomies of scale (due to diverse product line, need for close local control, and personal service), diverse market needs, and high product differentiation. Canada is not unique in having a fragmented home building industry, as Langford and Male (2001) report the construction industry in general is geographically dispersed and fragmented.

The Canadian housing industry is also labour-intensive. Based on Statistics Canada's Labour Force Survey (Canada, 2012), there were just under 1.3 million residential and

non-residential construction jobs in Canada. Statistics Canada's Labour Force Survey does not differentiate between residential and non-residential construction, but based on an analysis of 2006 Census data by Canada's national housing agency, about 300,000 people were classified as working in residential construction (Canada Mortgage and Housing Corporation, 2010). In 2010, these builders and trades people built 189,930 new homes in Canada (Canada Mortgage and Housing Corporation, 2011). While housing represents a significant part of the Canadian economy in terms of economic output and job creation, it is also a basic need and for many their source of financial security. In Canada, homes and vacation properties account for over 40 per cent of the assets of households (Canada Mortgage and Housing Corporation, 2010).

The construction industry in Canada is male dominated. According to Statistics Canada (Canada, 2011), men comprised 93.6 percent of the workforce in the transportation, trades, and construction work category. This is similar to levels found in the United States and United Kingdom (Agapiou, 2002; Arditi and Balci, 2009). The culture of the construction industry has been characterized as masculine or possessing a dominant male culture (Agapiou, 2002; Arditi and Balci, 2009; Lindebaum and Cassell, 2012). Arditi and Balci (2009) describe this masculine ingrained culture as a function of the unique nature, working conditions, and project-based setup of the industry. Studies of managers in the construction industry have revealed that they have less sensitivity (Arditi and Balci, 2009), are straight talkers (Agapiou, 2002), and less likely to talk about difficult subjects leading to an avoidance of emotion and reflection (Lindebaum and Cassell, 2012).

Finally, the environmental footprint of housing cannot be ignored. It is estimated that global building construction consumes 17 per cent of the fresh water, 25 per cent of the timber stock and 40 per cent of the material and energy produced each year (Kansal and Kadambri, 2010). Each new home constructed is estimated to generate about four to seven tonnes of construction and demolition waste, and this waste accounts for almost one quarter of the total waste going into landfills (Canadian Home Builders' Association - Alberta, 2011). In addition, large amounts of energy are consumed on an ongoing basis to make homes comfortable (i.e. heating, cooling, hot water, appliances

and lighting). Natural Resources Canada (2012) reports that the Canadian residential sector in 2009 accounted for about 1,422 petajoules of energy consumed and just over 67 megatonnes of carbon dioxide equivalent emissions (green house gas emissions). Kansal and Kadambri (2010: 50) highlight this succinctly when they state, “During building construction, vast quantities of waste material is [sic] created, and during building operations, large amount [sic] of energy is consumed, contributing extensively to environmental pollution.” From resources used to construct homes to the energy consumed to make living comfortable, the residential sector represents a significant source of global energy use (Pinkse and Dommissie, 2009).

While governments impose minimum building code requirements on new homes, these are largely focused on safety, accessibility and structural issues (Alberta Ministry of Municipal Affairs, 2011). Mandated energy efficiency requirements are minimal (e.g. minimum requirements for thermal insulation) and energy efficient building codes are still in development (Alberta Ministry of Municipal Affairs, 2012). In addition, building codes provide no guidance on the conservation of resources used during the actual construction process.

In response, some individual builders on their own recognisance have adopted “green” building practices and enhanced energy efficient features in their products. Other builders have opted to join industry sponsored voluntary environmental programs (the focus of this study). The goal of either of these environmental strategies is to meet the environmentally friendly desires of new home purchasers as well as assist in marketing their products and to achieve premium pricing through environmental differentiation (Siegel, 2009).

Built Green Canada, the focus of this research, is an example of a voluntary environmental program that provides third party certification of environmental performance. The non-profit program was founded in 2003, and it is overseen by a volunteer board of directors (Built Green Canada, 2011a). The program is marketed to new home builders as adding value to new home construction through the promotion and recognition that a Built Green Canada certified home is resource/energy efficient

and constructed in an environmentally friendly manner. The program's stated purpose is to promote, encourage, enable and recognize environmentally responsible residential home construction practices through five key areas: environmental concern, increased energy efficiency and reduced pollution, healthier indoor air, reduction in water usage, and preservation of natural resources (Built Green Canada, 2011b).

The program is designed around a checklist for member home builders to follow in new home construction (Built Green Canada, 2012). The checklist includes criteria that focus on both energy efficiency requirements and a menu of other environmentally friendly options (green building upgrades). Built Green Canada also provides home builders with a product catalogue of approved products that are appropriate for use in energy efficient homes. According to Built Green Canada (2012), the checklist's categories include:

- the energy efficiency rating of the home,
- operational systems,
- building materials,
- exterior and interior finishes,
- indoor air quality,
- ventilation,
- waste management,
- water conservation, and
- business practices.

Minimum point thresholds along with points awarded within the checklist are used to determine a new home's certification level. Currently, there are four levels of green achievement in the program: Bronze, Silver, Gold and Platinum (Built Green Canada, 2012). The final result of building a home in the program is that the new home consumer is presented with a Built Green Canada certification and label.

2.3 Environmental Competitiveness and Drivers

This section explores the research field of environmental competitiveness. It also examines the concept of environmental drivers/pressures. Section 2.3.1 reviews and critiques the predominant theories underlying environmental competitiveness while section 2.3.2 discusses the internal and external drivers or pressures that impact on a firm to go green.

2.3.1 Competitiveness

For many businesses the idea of adopting more environmentally friendly practices is seen as an additional cost that will impact the bottom line (Palmer et al, 1995). In other words, some firms view the costs associated with pollution abatement, environmental regulatory compliance, and waste reduction as additional expenses that erode profitability. There is a growing field of research; however, that provides the argument that proactive environmental strategies lead to innovation and competitive advantage (Hart, 1995; Porter and van der Linde, 1995; Sharma and Vredenburg, 1998; Branco and Rodrigues, 2006; Chen, 2008) improving firm performance (Stanwick and Stanwick, 2001; Menguc and Ozanne, 2005; Molina-Azorín et al, 2009; Clarkson et al, 2011).

Firms recognize that in order to survive, they must be competitive (Porter, 1980). Porter and van der Linde (1995) theorize that the idea of competitiveness has been shifting in the past few decades to a point where the environment provides a new battlefield for firms to gain competitive opportunity. In reviewing a number of case studies, Porter and van der Linde (1995) conceive that this environmental competitiveness is ultimately derived from innovation offsets that lead to superior productivity. Positive benefits and superior productivity that accrue from environmental innovation are manifest through better performing/higher quality products, products with higher resale values, input resource savings, and/or reduced disposal costs (Porter and van der Linde, 1995). In other words, going green can

strengthen a firm's competitive advantage in the marketplace by serving as a point of differentiation and/or cost reduction.

In critically assessing Porter and van der Linde's work, there are a number of issues that emerge. While Porter and van der Linde (1995) base their theory on the review of prior research, they offer no new empirical evidence in their review of previously related studies to support their proposed hypothesis on innovative environmental offsets that promote industrial competitiveness. In addition, their focus is almost exclusively on environmental regulatory reform. While there is an inherent logic to Porter and van der Linde's argument of innovation offsets leading to efficiencies, there is also the reality that doing new things or using new technologies is often initially expensive until experience curve and economy of scale benefits can be accrued (Ebert et al, 2012).

Also highly critical of Porter and van der Linde's work is Palmer et al (1995). Palmer et al takes issue with Porter and van der Linde's use of select case studies to support their position. As Palmer et al (1995: 120) state, "With literally hundreds of thousands of firms subject to environmental regulation in the United States alone, it would be hard not to find instances where regulation has seemingly worked to a polluting firm's advantage. But collecting cases where this has happened in no way establishes a general presumption in favor of this outcome." In rebutting Porter and van der Linde's hypothesis, Palmer et al propose an alternate model in which environmental regulation leads to a reduction in profits for the regulated firm. In critically analyzing Porter and van der Linde, Palmer's critique of their limited selection of specific firms and not a broader review has considerable merit. Based on practitioner experience while some innovation offsets are available in constructing an environmentally friendly home, they are more than countered by additional costs in terms of both time and materials. Finally, by focusing on costs, both studies fail to address the other side of the profit equation which is revenue. In other words, if customers are willing to pay more for environmentally friendly products, then the issues of cost efficiencies become less important in terms of competitiveness and profitability.

Paralleling Porter and van der Linde's work on environmental innovation offsets, Stuart Hart developed the "natural" resource-based view of the firm (Hart, 1995). Building on the resource-based view of the firm, Hart (1995) introduced the concept of the natural environment to develop a theory of environmental competitive advantage. According to Hart's (1995) theoretical study, the firm's relationship to the natural environment can build competitive advantage via environmentally sustainable economic activity. Hart (1995) identifies three interconnected strategies related to pollution prevention, product stewardship and sustainable development that can lead to competitive advantage based on lower costs, an ability to pre-empt competitors, and life-cycle thinking that develops new products with lower life-cycle costs. Once again, the idea is that going green can boost a firm's competitive standing in the marketplace. Aligning with this, Branco and Rodrigues (2006) theorize that firms engaged in environmentally and socially responsible activities accrue competitive advantage externally via gains in corporate reputation and internally via improved employee motivation. In addition, proactive responses on ecological issues are associated with the emergence of unique organizational capabilities contributing to firm competitiveness (Sharma and Vredenburg, 1998). Chen (2008) found that environmentally friendly core competencies in Taiwanese electronics companies were positively related to their green innovation performance and positive images as determined via an empirical based questionnaire of senior managers. Hart (1995) admits that there is much work to be done examining the relationships among these environmental strategies and indicators of financial and market performance.

Subsequent empirical evidence in support of Hart's natural-resourced based view of the firm and Porter's and van der Linde's innovation offsets, is mixed but generally supportive. In Molina-Azorín et al's (2009) literature review of 32 quantitative studies looking at the impact of environmental management on firm performance, they found a variety of results. The authors did report, however, that findings where a positive relationship between environmental action and improved financial performance exist were predominant in the literature. Also supportive of a positive relationship between environmental actions and firm financial performance were findings by Stanwick and Stanwick (2001). Their empirical study based on the Fortune Reputational Index of a

firm's commitment to the community and the environment found a strong relationship between a firm's environmental reputation and firm financial performance. A study of firms participating in the Environmental Protection Agency's National Environmental Performance Track program found that market capitalization improved for firm's accepted to the program (Yu, 2012). Menguc and Ozanne (2005) reported a correlation in their findings between a firm's environmental orientation and their profit after tax and market share in a sample of 140 Australian manufacturing firms. In a longitudinal study of the leading polluting industries in the United States, it has also been shown that a relationship exists between a firm's environmental reputation and firm financial performance which is supportive of the natural resource-based view of the firm (Clarkson et al, 2011). Interestingly, the same study found that improvements in a firm's financial resources also precede improvements in subsequent environmental performance complicating the causal relationship (Clarkson et al, 2011).

As the previous point above highlights, the empirical evidence in support of the environmental competitiveness theories is not indisputable. Menguc and Ozanne (2005) found conflicting results in their empirical study on natural environment orientation based on the natural resource-based view of the firm. Data on the environmental orientation of 140 Australian manufacturing firms showed a positive relationship to profit after tax and market share, but a negative relationship for sales growth. Other studies have also provided inconclusive results on the link between green firms and financial results (Hitchens et al, 2003; First and Khatriwal, 2010; Videen, 2011). Nonetheless, environmental strategies are an important competitive element that firms need to pay attention to (Sharma and Vredenburg, 1998), and further study is warranted. As Porter and van der Linde state (1995: 114-115), "Companies must start to recognize the environment as competitive opportunity...environmental strategies must become a general management issue...".

Table 2.1: Summary of Referenced Studies on Environmental Competitiveness (listed by theme)		
Author(s)	Type of Study	Key Results
<i>Basis for Environmental Competitiveness</i>		
Porter and van der Linde (1995)	Theoretical	Environment-competitiveness relationship with competitive advantage via innovation offsets
Palmer et al (1995)	Theoretical	Critique of Porter and van der Linde's hypothesis proposing alternate model in which environmental regulation leads to a reduction in profits for the regulated firm
Hart (1995)	Theoretical	Natural-resource-based theory of the firm
Branco and Rodrigues (2006)	Review article	Corporate responsibility and competitive advantage gained via corporate reputation and intangible resources through employees
Sharma and Vredenburg (1998)	Empirical	Proactive environmental responsiveness associated with the emergence of unique organizational capabilities
Chen (2008)	Empirical	Environmental core competencies related to green innovation performance and positive firm image
<i>Environmental Competitiveness and Firm Financial Performance</i>		
Molina-Azorín et al (2009)	Review article	Mixed findings in a literature review of 32 studies on environmental management on firm performance, but a positive relationship was most prevalent.
Stanwick and Stanwick (2001)	Empirical	Strong relationship between a firm's environmental reputation and firm financial performance
Menguc and Ozanne (2005)	Empirical	Firm environmental orientation is positively related to profit after tax and market share, but negatively related to sales growth
Clarkson et al (2011)	Empirical	Positive relationship between firm's environmental reputation and financial performance
Hitchens et al (2003)	Empirical	No relationship found between overall environmental and economic performance nor between environmental performance and management's environmental attitudes
First and Khatriwal (2010)	Empirical	Inconclusive findings on the relationship between firm environmental orientation and brand value
Videen (2011)	Empirical	No significant statistical relationship found green business initiatives and firm value.
Yu (2012)	Empirical	Participation in environmental protection programs and corporate social responsibility add to firm market capitalization

2.3.2 Drivers/Pressures

Previous research exploring firms and the drivers/pressures leading to environmental friendly strategies has revealed a number of internal and external pressures (Arora and Cason, 1996; Henriques and Sadorsky, 1996; Bansal and Roth, 2000; Videras and Alberini, 2000; Annandale et al, 2004; González-Benito and González-Benito, 2004; Lynes and Dredge, 2006; Mikler, 2007; Paulraj, 2009; Wu, 2009; Blackman et al, 2010; Sharma and Sharma, 2011). These pressures include regulatory/legislative pressure, stakeholder pressure (including customer pressure), competitive pressure, and ethical motivations of the organization. These drivers of environmental response were first clearly highlighted in Bansal and Roth's (2000) Model of Corporate Ecological Responsiveness. Bansal and Roth (2000) identified the drivers of ecological response as legislation, stakeholder pressures, economic opportunities and ethical motives. A brief description of each of these drivers is in order.

Regulatory/Legislative Pressure

From an economic perspective, the conventional rule is that a profit maximizing firm will employ pollution control and environmental remediation until the marginal benefit equals the marginal cost of fines arising from non-compliance (Nowell and Shogren, 1994). In this sense, costs associated with complying with environmental legislation and regulation are factored into the cost of doing business, and if non-compliance reduces profitability, a firm will be motivated to address environmental concerns in order to maximize profits.

For firms lagging in environmental response, it is clear to see how government regulation and legislation on environmental compliance, not to mention fines and penalties, can result in pressure to improve environmental action (Henriques and Sadorsky, 1996; Bansal and Roth, 2000; Khanna and Anton, 2002; Paulraj, 2009). For example, based on a mail survey of over 900 American firms, Paulraj (2009: 455) states, "The most obvious of all motivations that influence the adoption of environmental practices is legislation or regulation." In addition to environmental practices, legislation serves as a motivating force for firms to develop or improve green

products. Dangelico and Pujari's (2010) multiple case study analysis of 12 small to medium sized manufacturing firms in Italy and Canada found compliance with environmental regulation as a firm motivation for green product development. But it is not just current regulation that can motivate, as Maxwell et al (2000) empirically demonstrated that even the threat of increased regulation induces firms to reduce environmentally damaging activities. In other words, both current and planned environmental regulations serve as a motivating factor for firms to improve their environmental performance.

In Canada at the national level, environmental legislation and regulation is the responsibility of Environment Canada (a department of the Government of Canada). Environment Canada's mandate includes environmental protection in the areas of air emissions, greenhouse gases, wastewater, and chemicals (Environment Canada, 2011). Environment Canada's legislation and regulation enforcement activities cover areas including the manufacture and use of toxic substances, import and export of hazardous wastes and materials, and the protection of domestic water and water shared internationally.

Stakeholder Pressure

Stakeholders, including customers, have also been shown as source of environmental pressure on firms (Henriques and Sadorsky, 1996; Bansal and Roth, 2000; Khanna and Anton, 2002; Darnall et al, 2010a). Stakeholders are basically individuals or organizations who impact or are impacted by a firm (Freeman, 1984). Appealing to green consumers (Wu and Wirkkala, 2009), neighborhood or community group pressure (Henriques and Sadorsky, 1996), and lobbying by environmental non-profit organizations, can lead firms to adapt more proactive environmental responses. In other words, individuals and organizations operating in a firm's immediate industry environment can pressure a firm to improve environmental performance. Firm size also appears to play a role in the level of influence or pressure stakeholders are able to provide. Darnall et al (2010a) found that smaller firms are more responsive to stakeholder pressures in adopting proactive environmental practices.

However, the literature is not unequivocal on stakeholder influence. Although contradictory to other findings, González-Benito and González-Benito (2004) reported that relational motivation with respect to institutions and social groups around the company were not that instrumental in the implementation of environmental practices in their empirical study of 186 Spanish manufacturing firms. They speculated that this contradiction may be due in part to low environmental pressures on Spanish companies. In other words, this study suggested that stakeholder pressures were not a significant factor as there was little stakeholder pressure in that study's setting.

Competitive Pressure

As Bansal and Roth (2000: 718) state, "Economic opportunities also drive corporate ecological responsiveness." Other authors have described this as competitive pressure. Improving competitive advantage and environmental competitiveness (Hart, 1995; Porter and van der Linde, 1995) can drive firms to improve their environmental track record. According to Paulraj (2009: 455), "...firms that are motivated by competitiveness believe that their ecological responsiveness can lead to sustained competitive advantage, thereby improving their long-term profitability." In other words, going green is good for business and can help differentiate a firm in the marketplace.

Dangelico and Pujari (2010) reported that an important driver of green product development is expectations of market growth and increasing profits. As previously discussed, the empirical results are mixed on the relationship between environmental initiatives and firm financial performance (Molina-Azorín et al, 2009). In addition, firm competitiveness is enhanced as green product development enhances a firm's reputation and image (Dangelico and Pujari, 2010). Dangelico and Pujari based this finding on a qualitative approach that involved in-depth interviews with senior managers in 12 small and medium sized manufacturing companies in Canada and Italy. Parallel to this, Chen (2010) reported survey results about Taiwanese consumers of information and electronics products that found that green brand equity was positively related to green

brand image, green satisfaction, and green trust suggesting the importance of green reputation as a basis for competing. As the author states (2010: 307), “...investing on resources to increase green brand image, green satisfaction, and green trust is helpful to enhance green brand equity.”

Environmental initiatives that lead to reduced resource and input use can lead to cost reductions and increased efficiencies for a firm. These eco-efficiencies that reduce costs and increase efficiency are a strong motivator for going green (Lynes and Dredge, 2006). Chen et al (2006) found that investments in the environmental performance of products and green process innovations were beneficial to a firm’s competitive advantage via lower costs, differentiation and first mover advantages. González-Benito and González-Benito (2004) also found that competitive motivations of decision makers contribute to environmental transformation. In other words, environmental performance provides an additional way for a firm to differentiate its self in the minds of consumers and/or improve the revenue/cost economics of the firm’s business model.

Ethical Motivations of the Organization

Finally, the ethical motivations of the organization including top management can be a force to pressure the firm to do “the right thing” environmentally (Bansal and Roth, 2000; Paulraj, 2009). As one would expect, proactive environmental beliefs of senior management and a firm’s leadership have the ability to shape a firm’s ecological impact. Lynes and Dredge (2006) in their study of Scandinavian Airlines found that both culture and internal leadership played key roles in positive environmental outcomes. According to Lynes and Dredge (2006: 116), “...it was found that internal leadership, in the form of environmental champions in senior management positions, played a key role in the positive outcomes of the airline’s environmental performance.” In addition to placing internal pressure on decision makers to consider environmental impacts, the authors identified that environmental champions helped build a strong internal culture that was willing to embrace industry benchmarking and improve environmental performance. These environmental champions or environmental visionaries also placed more emphasis on environmental issues in their daily decision

making. This fostered the development of the notion that environmental considerations become part of the airline's corporate culture (Lynes and Dredge, 2006). The authors stressed the importance of these environmental champions when they stated (2006: 134), "Environmental champions are important not only within the airline but also amongst the industry in general. Airlines that lead the way in environmental management can act as role models for other members of the industry."

González-Benito and González-Benito (2004) also reported that ethical motivations of decision makers contribute to environmental transformation at firms. The authors theorize that making environmental improvements, especially ones that are easily visible from outside the company, allows management to demonstrate their environmental commitment. This demonstration of environmental commitment was seen as important for environmentally conscious managers to help them address concerns of social critics (González-Benito and González-Benito, 2004).

Dangelico and Pujari (2010) also found that an internal environmental orientation at a firm is an important motivator to go green. The authors added, however, that simply having motivations to go green is not enough, and that firms must set policies and targets in place to make gains on green practices (Dangelico and Pujari, 2010). In other words, it takes more than just management's desire to go green to improve environmental performance. In their multiple case study analysis, the authors identified the development of sustainability plans or ethical codes to provide direction for the firms as an important step in operationalizing environmental practices. The documentation and formalization of environmental policies, targets for products, ethical codes and/or sustainability plans were viewed as an important guide for the firms examined (Dangelico and Pujari, 2010). These documents provide criteria for firms to follow when examining their production processes and life-cycle analysis of their products, for example, component selection, product manufacturing cycle, packaging materials, and consumer health and safety risks. As the authors state (2010: 477), "...formalizing environmental policies and targets for products into documents such as ethical codes or sustainability plans is important to guide companies in the development of green products."

In summary, this section highlighted the key drivers/pressures of environmental response in firms. Following Bansal and Roth's (2000) Model of Corporate Ecological Responsiveness as a framework, the drivers/pressures were identified as legislation, stakeholder pressures, economic opportunities and ethical motives. One possible response by an organization to environmental pressures is for the firm to join a voluntary environmental program (the focus of the next section).

Table 2.2: Summary of Referenced Studies on Drivers/Pressures to Go Green (listed by theme)		
Author(s)	Type of Study	Key Results
<i>Model of Corporate Ecological Responsiveness</i>		
Bansal and Roth (2000)	Empirical	Model of Corporate Ecological Responsiveness - firm environmental motivations linked to competitiveness, legitimation (complying with legislation) and ecological responsibility
<i>Studies in Alignment with the Model of Corporate Ecological Responsiveness</i>		
Henriques and Sadorsky (1996)	Empirical	Formulation of environmental plan linked to customer, shareholder, government regulatory and community pressure. Lack of environmental plan linked to lobby group pressure and sales-to-asset ratio.
Khanna and Anton (2002)	Empirical	Incentives to participate in proactive environmental management systems include the threat of environmental liabilities, compliance costs, market pressure and public pressure.
González-Benito and González-Benito (2004)	Empirical	Environmental transformation due to certain motivations or environmental beliefs within the company including ethical, productive, commercial, and relational.
Chen et al (2006)	Empirical	Green product and process innovation positively correlated to corporate competitive advantage
Lynes and Dredge (2006)	Empirical	Three key motivators for environmental commitment: eco-efficiencies, culture, and internal leadership (environmental champions).
Mikler (2007)	Empirical	Home country impacts a firm's view on environmental management. US firms greater influenced by consumer demand and regulation. German and Japanese firms influenced more by stakeholder and internal company strategies.

Table 2.2: Summary of Referenced Studies on Drivers/Pressures to Go Green (listed by theme)		
Author(s)	Type of Study	Key Results
Paulraj (2009)	Empirical	Environmental motivations identified as legislative, competitive and ethical.
Wu and Wirkkala (2009)	Empirical	Motivations for environmental overcompliance include market forces, regulatory pressure, and personal values and beliefs of upper management toward the environment
Chen (2010)	Empirical	Green brand image, green satisfaction, and green trust positively related to green brand equity
Dangelico and Pujari (2010)	Empirical	Firm motivations for green product innovation include regulatory compliance, improved competitiveness, and ecological responsibility (values).
<i>Other Findings on Drivers/Pressures to Go Green</i>		
Arora and Cason (1996)	Empirical	Largest polluters most likely to participate in voluntary environmental regulation. Participation rates higher in industries with greater consumer contact. Public recognition important factor.
Videras and Alberini (2000)	Empirical	Publicity is an important element of participation in environmental programs. Firms with worse environmental histories are more likely to participate. Firms value information/technology transfer from joining programs.
Blackman et al (2010)	Empirical	Public disclosure of environmental performance drives firm participation in environmental cleanup programs.
Darnall et al (2010a)	Empirical	Smaller firms are more responsive to stakeholder pressures in terms of adopting proactive environmental practices.
Sharma and Sharma (2011)	Theoretical	Proactive environmental strategy influenced by attitudes, subjective norms and perceived behavioural control.

2.4 Voluntary Environmental Programs

The following section explores the research area of voluntary environmental programs. Voluntary environmental programs are defined followed by a discussion of the research on why firms would make the strategic decision to participate in a voluntary environmental program.

Environmental policy in Canada has typically been a top down government regulated approach often imposing significant costs on both firms and regulators (Henriques and Sadorsky, 2008). Voluntary environmental programs, on the other hand, are a practical response by industry to find a more flexible way to safeguard the environment (Henriques and Sadorsky, 2008). A voluntary environmental program can be defined as a voluntary code with the following characteristics (Webb, 2004):

- i. commitments are not required by legislation or regulations;
- ii. they are agreed to by one or more individuals or organizations;
- iii. they are intended to influence or control behaviour; and
- iv. they are to be applied in a consistent manner or to reach a consistent outcome.

Voluntary environmental programs can be classified based on three basic types of structure which include a public voluntary program, negotiated agreements between business and government, or unilateral agreements by industry firms (Morgenstern and William, 2007). Built Green Canada would be considered a quasi-unilateral agreement as it was a business initiated program although the program's certification is offered in partnership and supported by Natural Resources Canada (Government of Canada).

Why would a firm make the strategic decision to participate in a Voluntary Environmental Program?

As a voluntary environmental program is just that, voluntary, an understanding of firm strategic decisions to participate and rationale are in order. As the decision to join a voluntary environmental program is a subset of a firm decision to go green, there are

many parallel pressures and driving forces. For example, a study on company use of voluntary environmental management systems in Australia (Annandale et al, 2004) found many of the previously mentioned drivers like pressure from customers, management, the public and regulators; corporate culture; and cost savings to be influential. In addition, Darnall et al (2000: 2) in their study of ISO 14001 (a voluntary environmental management system) reported reasons for joining the program included, “...evidence suggesting that international trade influences, supplier references, public relations pressures, customer preferences, shareholder interests, environmental performance factors, compliance pressure, and other motives may play a part.” The following discussion mirrors the previous higher level discussion on green drivers and pressures, except the focus is now solely on literature and studies about voluntary environmental programs and voluntary environmental over compliance.

In their study based on previously published research of voluntary environmental programs in Canada, Henriques and Sadorsky (2008) identified the main motivators to participate in a unilateral voluntary environmental program are to pre-empt or influence government regulation, cost efficiency, to improve stakeholder relations, and the possibility of receiving technical assistance or an incentive mechanism. These motivations are designed to build competitive advantage (Hart, 1995) via increasing a firm’s internal efficiency and external legitimacy (Henriques and Sadorsky, 2008). As Henriques’ and Sadorsky’s (2008) results are both recent and based on findings in Canada, it will be used as the starting point of a framework to discuss and assess other findings in the literature on voluntary environmental programs discussed below.

2.4.1 To Pre-Empt or Influence Government Regulation

Firm participation in a voluntary environmental program may be based on a strategic decision to pre-empt or influence government regulation. According to Henriques and Sadorsky (2008: 145), “Firms may participate in VEPs in order to gain relief from existing environmental regulation or the pre-emption of regulatory threats or the influencing of future regulations.” Lyon and Maxwell (1999: 189) theorized that, “...two alternative strategies firms may use to shape government regulations: (i)

attempting to preempt future legislation altogether or (ii) failing this, to soften the impact of new laws by inducing regulators to set relatively weak standards.” Ultimately these actions are targeted at cost savings for the firm as well as building intangible benefits (e.g. trust and goodwill) between the firm and government (Henriques and Sadorsky, 2008). Khanna et al’s (2007) empirical study of firms participating in voluntary environmental programs also identified regulatory pressures as significant in motivating firm participation and adoption of environmental practices.

Blackman et al (2010) found that regulatory pressure through public disclosure also drives participation in voluntary cleanup programs. This econometric study of 1,534 contaminated sites in the state of Oregon found that public disclosure of environmental performance increased participation in one of the state’s voluntary remediation programs. In addition, expected costs imposed by regulators and other stakeholders to deal with environmental contamination were also positively correlated to joining a voluntary program.

Using data from the Oregon Business Environmental Management Survey, Wu and Wirkkala (2009) found statistically significant results that regulatory pressures contribute to firm environmental over compliance. It should be noted that over compliance is not the same as joining an environmental program, but it does reflect a voluntary action by the firm to exceed mandated environmental performance. It is clear that voluntary action and voluntary environmental programs provide firms with a mechanism to influence the political sphere in which they operate.

2.4.2 Cost Efficiency

Henriques and Sadorsky (2008: 146) state, “Firms may participate in VEPs in order to increase cost-efficiency and reduce risk through pollution prevention.” Other cost efficiencies are achieved through innovation offsets (Porter and van der Linde, 1995) and competitive advantage (Hart, 1995). As Hart (1995: 999) points out, “...according to total quality management, business process should not produce waste...pollution is nothing more than a form of waste, which is to be eliminated in the pursuit of quality...”

In this same line of thinking, Porter and van der Linde (1995) describe pollution as economic waste and a source of inefficiency. In terms of this study, it is easy to see how waste generated during residential construction (e.g. lumber, drywall, and other left over building supplies) represents an inefficient use of resources. Voluntary environmental programs provide firms with the opportunity to improve processes and reduce resource use leading to cost efficiencies, greater competitiveness and ultimately increased profitability.

Annandale et al's (2004) empirical study of Australian companies found that cost savings were one of the factors that influenced environmental performance. Similarly Wu and Wirkkala (2009) confirmed that costs are a significant factor in determining environmental over compliance and that economic fundamentals and forces underlie a firm's environmental stance. Cost savings allow a company to be more competitive. González-Benito's and González-Benito's (2005) empirical study of 184 medium and large Spanish manufacturing companies confirmed that competitive motivations were positively related to firm's pursuing ISO 14001 environmental certification. In this line, Khanna et al (2007) reported that competitive forces are also a motivating factor for firm participation in voluntary environmental programs.

2.4.3 Improve Stakeholder Relations

According to Henriques and Sadorsky (2008: 146), "Firms may participate in VEPs in order to foster better relationships with stakeholders." In an empirical analysis of American manufacturing companies, Darnall et al (2010b) further studied firm reasons to participate in voluntary environmental programs as a response to external stakeholder pressures. This study reported organizations that recognize the importance of stakeholder influences on their firms' environmental practices are more likely to participate in a voluntary environmental program (Darnall et al, 2010b).

Not all of the literature is supportive of the influence of stakeholders as a driver of motivation for firms to participate in a voluntary environmental program. González-Benito and González-Benito (2005) were unable to demonstrate a strong relationship

between a firm's motivation to join an environmental program and its relations with surrounding institutions and social groups. The authors attributed this to their observation of low environmental pressures placed on the Spanish companies that comprised their study. Another contradictory result from Khanna et al (2007) reported that there was no significance between pressure from consumers and investors as a source of influence on firm participation in a voluntary environmental program. Darnall et al (2010a) found that firm size was an important determinant of stakeholder influence. This could provide a possible explanation for the variation in results as their study suggests that smaller firms are more likely to experience stakeholder pressure than larger firms (Darnall et al, 2010a).

2.4.4 Knowledge

Henriques and Sadorsky (2008) report that a decision to join a voluntary environmental program can be in part motivated by a desire to gain access to resources and capabilities to address environmental issues. As Henriques and Sadorsky (2008: 148) state, "Participation in VEPs may provide a firm with a low-cost way of building its resources and capabilities." Furthermore, in Videras and Alberini's (2000) econometric study of three EPA voluntary environmental programs, they found some evidence suggesting technology transfer was a factor influencing firm participation. In other words, voluntary environmental programs can provide firms with information on best practices and new technologies to improve their environmental performance.

2.4.5 Other

Although the literature on a firm's rationale to join a voluntary environmental program shows some consistency in legislative, stakeholder, competitive, and knowledge drivers, there are a number of other factors that are cited. These factors include, firm size, existing environmental track record, and public recognition. Other studies have also identified a host of internal factors ranging from power and leadership to organizational culture and incentives. The following discussion highlights these less frequently reported findings.

In two different articles González-Benito and González-Benito (2004 and 2005) found a positive relation between firm size and involvement in environmental programs. The author's speculate that this may be attributable to larger firms having greater availability of resources to devote to environmental initiatives. In addition, Khanna et al (2007) also found a relation to firm size and willingness to participate in a voluntary environmental program. Larger firms have access to more resources allowing them to dedicate more time, money and people to addressing environmental concern. Larger organizations are also more likely to experience greater cost efficiencies in an absolute sense for reducing their ecological footprint. While larger organizations are more likely to participate, a key underlying factor predicating this is that environmental issues need to be of organizational concern (Khanna et al, 2007). In this sense, size seems to matter, but even more so is a desire to be seen as a good corporate citizen.

Videras and Alberini (2000) also found that firms with worse environmental track records were more likely to participate in voluntary environmental programs. That being said, the authors found that these poorer performing firms were only attracted to voluntary environmental programs that were directly related to their own pollution reductions. Intuitively this makes sense as firms with the most to gain, would be most interested especially if it directly benefited the firm. However, based on the quantitative nature of their study, the authors were unable to assess the actual management decision making process that resulted in this outcome.

Arora and Cason's (1996) study of the EPA's 33/50 program also revealed that industries with greater or closer contact with the customer had higher participation rates. According to Arora and Cason (1996: 413), "...public recognition is key to improving the success of voluntary environmental regulation." Similarly, Videras and Alberini (2000) reported that based on their empirical study of 218 American manufacturing firms, publicity is an important reason firms join voluntary environmental programs. The benefits of positive publicity relate back to a firm improving its ability to differentiate itself in the marketplace leading to gains in competitive advantage.

In addition to external influences, other studies have highlighted a number of internal factors driving firm participation in voluntary environmental programs. In a theoretical analysis, Prakash (2001) proposed influences internal to the firm based on power and leadership that lead to enhanced environmental compliance. According to the author (2001: 286), "...existing explanations based on factors external to firms are under-specified (not wrong)...We also need to focus on dynamics internal to firms." In this sense, Prakash is critical of only relying on external influences, and suggests a number of internal factors to the organization impact environmental decision making. These include the environmental proponent's (champion's) hierarchical position, communication skills, expertise, and their ability to invoke external factors to shape perceptions of others. The author also argued the likelihood of a firm going green was inversely related to the degree of organizational change. In other words, the greater the change required, the stronger the opposition to proactive environmental policy adoption.

In a qualitative study of 10 businesses in the United States, Howard-Grenville et al (2008) suggested that is more than just the external influences of social, regulatory, and economic pressures that influence a firm to participate in a voluntary environmental program as firms operating in the same industry and competitive environment act differently. Their exploratory study identified at least five internal core organizational and individual factors including managerial incentives, organizational culture, organizational identity, organizational self-monitoring, and personal or professional affiliations and commitments (Howard-Grenville et al, 2008).

Two legal studies looking at business compliance with regulation in general have cited Howard-Grenville et al's work. Short and Toffel (2010) reported in a legal study of self-regulation that there is a complex set of normative concerns at play within an organization. The authors identify a variety of internal motivations to comply with regulation including compliance to demonstrate their legitimacy, compliance seen as integral to their corporate culture/identity or compliance due to individuals within the firm believing it is the right thing to do. In the second legal study of anti-competitive business regulation compliance in Australia, Parker and Nielsen (2011) reported that management belief in the positive business case for compliance is an important factor in

determining firm regulatory compliance. The authors also reported that management style is also significantly and independently related to compliance management behavior. The authors fail to adequately define management style; however, only referring to it in the context of awareness to external stakeholders and that a better managed firm is in a better position to manage compliance. In general, these findings reinforce Howard-Grenville et al's (2008) point that there is a need for further qualitative research using in-depth interviews to gain deeper insight into the rationale to participate which is the intention of the present author's research.

Although internal ethical drivers within the organization feature quite prominently in the general field of drivers and pressures to go green, Henriques and Sadosky (2008) did not identify them as a main motivator in their research on previous studies of voluntary environmental programs. That being said, there are studies that demonstrate the ethical motivations of firm decision makers play a role (González-Benito and González-Benito, 2005; Wu and Wirkkala, 2009). Firms with upper management exhibiting values aligned with conservation and environmental protection including a long term view that environmental management is good for the bottom line are more likely to take a proactive environmental stance (Wu and Wirkkala, 2009). Wu and Wirkkala (2009: 415) state, "...strong and consistent evidence that upper management values and beliefs toward environmental stewardship have a strong and statistically significant effect on the choice of environmental overcompliance."

It appears that a number of themes are emerging to explain firm rationale to join voluntary environmental programs, but further empirical analysis and further investigation of the underlying reasons is warranted. As Darnall et al, (2000: 2) point out, "Additional research is needed, however, to determine which of these are most influential and for what types of firms." Regardless of reason/rationale, the use of voluntary environmental programs is on the rise (Annandale et al, 2004).

Table 2.3: Summary of Key Studies on Voluntary Environmental Programs (listed by theme)		
Author(s)	Type of Study	Key Results
<i>Henriques and Sadorsky (2008) Main Motivators</i>		
Henriques and Sadorsky (2008)	Review article	Main motivators to participate in a voluntary environmental program are related to government regulation, cost efficiency, stakeholder relations, and knowledge gain/technical assistance/incentives
<i>Studies Generally Supportive of Henriques and Sadorsky (2008) Main Motivators</i>		
Lyon and Maxwell (1999)	Theoretical	Motivations of corporate environmentalism designed to shape government regulations by either pre-empting future legislation or to reduce impact of new laws (weaker standards).
Darnall et al (2010b)	Empirical	Firms that recognize stakeholder influences on environmental practices more likely to join a voluntary environmental program.
<i>Studies Generally Supportive of Henriques and Sadorsky (2008) Main Motivators with Additional Factors</i>		
Arora and Cason (1996)	Empirical	Largest polluters most likely to participate in voluntary environmental regulation. Participation rates higher in industries with greater consumer contact. Public recognition important factor.
Darnall et al (2000)	Empirical	Motivations to participate in voluntary environmental programs include global trade influences, suppliers, public relations, customer demands, shareholder interest, and compliance pressure.
Videras and Alberini (2000)	Empirical	Motivations to participate in voluntary environmental programs include publicity, poor environmental track record, and information/technology transfer.
Annandale et al (2004)	Empirical	Factors that influenced voluntary environmental performance include pressure from customers, management, the public and regulators; corporate culture; and cost savings.
Blackman et al (2010)	Empirical	Regulatory pressure and public disclosure drive participation in voluntary environmental programs.
<i>Studies Generally Supportive of Henriques and Sadorsky (2008) Main Motivators with Some Contradictions</i>		
González-Benito and González-Benito (2005)	Empirical	Business decision to pursue ISO 14001 (environmental) certification driven by ethical and competitive motivations. Relational or stakeholder motivations not significant.
Khanna et al (2007)	Empirical	Influences on proactive environmental management include larger firm size, presence of a

Table 2.3: Summary of Key Studies on Voluntary Environmental Programs (listed by theme)

Author(s)	Type of Study	Key Results
		research and development department, regulatory pressures, and competitive pressures. Consumers and investors were not found to be a source of pressure.
Wu and Wirkkala (2009)	Empirical	Regulatory pressure, competitive pressure, upper management values are factors that influence business decisions for environmental overcompliance while high costs deter and consumer pressures not significant.
<i>Studies with an Internal Focus</i>		
Prakash (2001)	Review article	Beyond-compliance environmental policies due to two internal factors based on power and leadership
Howard-Grenville et al (2008)	Empirical	Decision to join voluntary environmental programs driven by internal factors including managerial incentives, organizational culture, and organizational identity.

2.5 Environmental Decision Making and Planning

The aim of this section is to work from the visible manifestation of environmental decision making, that being the formulation of an environmental plan, back to the cognitive processes decision makers use to formulate and make sense of an environmentally friendly response. In this line, a framework based on the cognitive perspective will be used to explore the environmental decision making process. This represents the third inner circle on Figure 2.1.

2.5.1 Environmental Plans

In response to pressures to improve their environmental impact, firms often make the business decision to go green and develop an environmental plan. In fact, Henriques and Sadorsky (1996: 382) define an environmentally responsive firm as, "...a firm that has formulated an official plan for dealing with environmental issues". An environmental plan helps firms manage their impact on the environment. An environmental plan serves as one of the primary ways of communicating the firm's position on proactive environmentally friendly strategies (Henriques and Sadorsky, 1996). In terms of the driving factors behind formulating an environmental plan, Henriques and Sadorsky (1996) conducted a mail questionnaire survey of the largest 750 firms in Canada to seek data on both positive and negative influences. Their empirical results of the 400 respondents (53 percent response rate) found 59 percent of the organizations had an environmental plan.

Their survey results revealed that positive influences on the formulation of an environmental plan (firm is more likely to have a plan) included customer pressure, shareholder pressure, government regulatory pressure and community pressure. These results parallel the drivers/pressures to go green and to participate in voluntary environmental programs discussed in the previous sections. Negative pressures, decreasing the likelihood of having an environmental plan, were associated with "other lobby group" pressure and increases in a firm's sales-to-asset ratio that the authors used as a proxy for how close a firm was operating to capacity. On this latter point, the

authors speculate that firms operating close to capacity are more likely to be concerned with expansion issues than environmental considerations. This links to Nowell and Shogren's (1994) findings that a profit maximizing firm will employ pollution control and environmental remediation until the marginal benefit equals the marginal cost. In this case, it could be argued that the opportunity costs of not expanding are too great and the benefits from going green are too small when faced with an expansion decision when a firm is operating close to capacity. The authors were unable to explain why "other lobby group" pressure had a negative impact on the business decision to have an environmental plan.

While Henriques and Sadosky's (1996) findings that some stakeholder pressure is positive (e.g. customers and shareholders pressure) while some stakeholder pressure is negative (e.g. "other lobby group" pressure) may appear counter-intuitive, it does reflect some of the mixed results found in other research. For example, research supporting stakeholder influence (including Darnall et al (2000), Annandale et al (2004), and Henriques and Sadosky (2008)) can be contrasted with research that finds little support for stakeholder influence (such as González-Benito and González-Benito (2005), Wu and Wirkkala (2009), and Khanna et al (2007)). To critically assess these findings more information would be required on the level or scope of influence these various stakeholders have on the company as well as the company's current situation. This aligns with stakeholder theory, whereby stakeholder salience and impact on the firm depends upon the stakeholder's power, legitimacy and urgency (Mitchell et al, 1997). For example, Henriques and Sadosky's (1996) "other lobby group" category included environmental groups which may be viewed by the firm as having a single interest not compatible with the firm's profit motive (e.g. a stakeholder seen as having less power and legitimacy by the firm). In other words, if the pressure to participate comes from a stakeholder (like an environmental lobby group) that has a single interest in reducing a firm's output, it could be argued that a firm would choose to ignore or refute the group's claims and not concede that changes on an environmental front were in order. To borrow from theories of contingency management (Fiedler (1964); Lawrence and Lorsch (1967)), a firm's leadership response to stakeholder pressure may depend on the situation (e.g. who the stakeholder is and their importance to the firm).

Other findings from the Henriques and Sadorsky (1996) study of firm responsiveness revealed that environmental plans were more likely when firms viewed environmental issues as growing and that plans were more prevalent in the natural resource sector as opposed to manufacturing and service sectors. Limitations of this research are that it only focused on large publicly traded corporations and deeper meaning of underlying reasons and rationale of why a firm's leaders would formulate an environmental plan could not be answered via a mail questionnaire. An understanding of these deeper environmental motivations and decision making processes is in order.

2.5.2 Environmental Decision Making (Motivations, Cognition, Sensemaking, and Decision Making)

As the context of this study is to make sense of the home builder's decision to join a voluntary environmental program, an explanation of sensemaking and Personal Construct Theory (PCT) is appropriate. In addition, as a voluntary program requires a conscious decision to join, an understanding of this decision making process is also pertinent. In that line, an understanding of the mental processes by which decision makers use to reach the decision to participate in a voluntary environmental program will be attempted.

Motivations

Throughout the literature on environmental decision making, the term motivation is often not defined or is used rather loosely. For example, González-Benito and González-Benito (2005: 462) define it as, "...motivations being understood, in a general sense, as the company beliefs about which effects and results the implementation of environmental management practices can and should have." Sharma and Sharma (2011) describe environmental motivation as positive managerial attitudes/values toward environmental preservation. These definitions contrast with the very broad definitions of motivation used in the psychological literature that generally encompass four key concepts in motivation to include needs, values, goals and intentions, and

emotions (Locke, 2000). In this sense, motivation includes everything from basic physiological needs to a manager's mood in terms of choices to act on, the intensity of action and the persistence of action (Locke, 2000). These types of factors (e.g. hunger, emotional state) are not within the scope of this study. For the purposes of this study, the aim is to assess how home builders construe and make sense of the drivers/pressures to participate in a voluntary environmental program and which drivers/pressures are important in that decision. As a result, the very broad term motivation, when used in this study, is used in a cognitive aspect of the construal and sense making of the influences on the decision making process.

This approach to motivation is based on the idea that motivation and cognition go together (Locke and Latham, 2004). According to Locke (2000: 409), "It is a virtual axiom that human action is a consequence of cognition and motivation or, put another way, knowledge (including skill and ability) and desire." In other words, a decision or action is the outcome of both. Locke (2000: 415) reinforces this duality when he adds that, "Cognition and motivation (thinking and effort) always go together." The author also links cognition and motivation in developing strategies for goal attainment. Therefore when examining motivation or the internal factors that impel action and the external factors that can induce action (Locke and Latham, 2004), the goal of this research is to understand how decision makers make sense of these factors that influence their decision to participate in a voluntary environmental program. This is in alignment with PCT (discussed in section 2.5.3) where a separate concern with motivation is not required (Kelly, 1955; Jankowicz, 1987; Butt and Burr, 2004; Epting and Paris, 2006; Benjafield, 2008).

Cognition, Sensemaking and Decision Making

The rationalist decision making model, often found in business textbooks (e.g. see Ebert et al, 2012) has proved to be an over simplification: see Simon (1955). Like any other way of knowing, managerial rationality is bounded, and a study of the ways in which a manager understands their situation is more useful (Nadkarni and Barr, 2008). This leads to the idea of sensemaking.

Sensemaking is the making of sense (Weick, 1995). It is the how, why and what of constructing meaning. According to Weick (1995: 4), “How they construct what they construct, why, and with what effects are the central questions for people interested in sensemaking.” At the most basic level, sensemaking is about the mental processes by which we attribute meaning to our experiences; in other words, how we make sense of things (Weick, 1995). As people actively make sense and ascribe meaning to reality, sensemaking allows individuals to deal with uncertainty and ambiguity (Pater and van Lierop, 2006). In turn, mental processes and cognitive frameworks affect each component of sensemaking (Daft and Weick, 1984). Sensemaking is tied to how we think and how we think impacts our sensemaking (Bogner and Barr, 2000 and Narayanan et al, 2011). It is a circular process.

According to Pater and van Lierop (2006: 344), “The concept of sensemaking is particularly relevant for organisations in complex environments.” For decision makers, sensemaking is about how to make sense of the internal and external influences that impact the decision making process. Cognitive thought processes are also influenced by the content of problems (Anderson, 2005). As Daft and Weick (1984: 286) point out, “Organizations must make interpretations. Managers literally must wade into the ocean of events that surround the organization and actively try to make sense of them.” As cognitive structures and frameworks enable both sensemaking and the interpretation processes during diagnosis and choice, sensemaking is a pivotal activity in decision making (Narayanan et al, 2011). Sensemaking has also been shown to be useful in explaining aspects of decision making related to corporate social responsibility (Fassin and Van Rossem, 2009).

The importance of examining the cognitive perspective in strategic decision making was highlighted by Schwenk (1988: 41) when he stated, “...the increased recognition of the importance of key decision-makers’ perceptions in studying the links between the environment, strategy, and structure as well as a greater awareness of the role of cognitions in strategic issue diagnosis and problem formulation.” Gaining a better understanding of how decision makers at home building firms make sense of their

competitive situation and the broader environment is important in helping to determine why some of them make the choice to participate in the Built Green Canada program. As Prakash (2001: 287) states, “Clearly, the cognitive component of organizational decision-making is important because values, mental models, and ‘sensemaking’ on beyond-compliance policies differ across managers.” To understand how managers assess their situation and respond to the various drivers/pressures leads to the area of sensemaking and of how issues are construed by the manager (Martin and Parmar, 2012). In that sense, a constructivist perspective of how the decision maker personally makes sense of their situation forms the basis of how this topic will be explored. This leads to a discussion on personal constructs and the work of George Kelly.

2.5.3 Personal Constructs

George Kelly published his original theory of personal constructs in his 1955 publication *The Psychology of Personal Constructs*. Kelly’s (1955) fundamental postulate and 11 corollaries provide the basis of Personal Construct Psychology (PCP) and Personal Construct Theory (PCT). According to Jankowicz (1987: 482) taken together, “The 12 assertions are quite general in scope, being an approach to psychology as much as a succinct and major theory of personality.” Personal constructs can be regarded as an individual set of perspectives people use to structure, interpret and anticipate events (Tan and Hunter, 2002; Benjafield, 2008). Constructs are the attributes which people use to make sense. Kelly (1963: 105) described the basic nature of a construct as, “A construct is a way in which some things are construed as being alike and yet different from others.” Furthermore, constructs are expressed as two contrasting poles - dichotomous or bipolar dimensions of meaning (Kelly, 1955 and 1963). In this sense, meaning does not exist unless the contrast involved is specified (e.g. ‘good’ as opposed to ‘poor’ means something very different than ‘good’ as opposed to ‘evil’). According to Epting and Paris (2006: 23), “...Kelly’s psychology focuses particular attention on how people give meaning and definition to what is there, such that their own meanings and definitions become the very foundations of who and what they are.” PCT is a working theory that helps people make sense of their lives

(Butt and Burr, 2004). In this sense, PCT has both constructivist and cognitive elements.

PCT involves sensemaking in that it is concerned with how an individual makes meaning out of events in a continuous and ongoing manner. As Epting and Paris (2006: 23) state, "...Kelly is interested in how people themselves interpret what's going on, that is, in how they give meaning to the world." In this sense, knowledge is constructed. In addition to the PCT psychological approach to knowledge construction reviewed in this section, there is also a sociological approach to sensemaking. Berger and Luckmann (1966) explicitly assert that knowledge is an invention: a social construction. In light of this, using PCT in this study to represent the process by which home builders make sense of the decision to join a voluntary environmental program, it also suggests that the process is the same by which all knowledge is created.

PCT embodies constructivist elements in that for constructivists meaning is private and personal (Raskin, 2011). Butt and Burr (2004: viii) state, "...the way we think, feel and act is not dictated by real and undisputable events as such, but by the way in which we interpret them." PCT is also viewed in the realm of cognitive theory in that mental processes are used to construct understanding of one's self, others and relationships in an ongoing process of checking whether one's personal constructs accurately account for events (Raskin, 2001). This ongoing process of sensemaking and construing is also the basis by which constructs are used as grounds for predictions of subsequent events and experiences (Kelly, 1955 and 1963). As Kelly states (1955: 14), "Constructs are used for predictions of things to come, and the world keeps rolling along revealing these predictions to be either correct or misleading" Kelly likened this to the scientific process whereby theories are tested and changed in light of results, and he termed this notion as "man-the-scientist". In other words, PCP views an individual as an active player in their environment that is capable of combining and revising constructions in ongoing processes of making sense (Butt and Burr, 2004; Raskin, 2001).

A few brief points on what PCP is not. Although PCP has similarities with both cognitive psychology and humanistic psychology it is unique unto itself (Benjafield,

2008). Kelly's notion of core constructs and ongoing process of meaning making precludes it from being a typology or categorisation system of personality traits (Benjafield, 2008). In addition, as sensemaking and learning are on ongoing iterative experiential process, there is no notion of developmental stages (Epting and Paris, 2006). Finally, there is no notion of or separate concern with motivation (Kelly, 1955 and 1963; Jankowicz, 1987; Butt and Burr, 2004; Epting and Paris, 2006; Benjafield, 2008). This last point is important to the assessment of reasons why a home builder would choose to participate in an environmental program. As previously mentioned, the literature on participation in voluntary environmental programs has loosely defined the term motivation. Going beyond motivation with a personal construct perspective the focus turns to how decision makers make sense of and construe the drivers/pressures of joining a voluntary environmental program. In other words, the concern is not the drivers and pressures per se, but rather how the manager makes sense of them and acts on their personal constructs. As can be seen, in order to understand the decision making process of home builders in terms of deciding to join a voluntary environmental program, PCT provides a useful avenue to assess how they make sense of that decision.

The repertory grid technique was designed as an instrument for eliciting personal constructs (Kelly, 1955). According to Fransella et al (2004: 6), "Kelly devised the repertory grid technique as a method for exploring personal construct systems." In other words, the repertory grid is a cognitive mapping tool (Tan and Hunter, 2002; Fassin and Van Rossem, 2009) that provides for a precise and explicit articulation of an individual's personal constructs (Jankowicz, 1987). According to Fransella et al (2004: 1) the repertory grid "...is personal construct theory in action." Beyond its initial clinical use in psychotherapy, the repertory grid technique has been applied to numerous fields including education, politics, market research, and a variety of organizational and business applications (Fransella et al, 2004; Jankowicz, 2004; Fassin and Van Rossem, 2009). Additional details on the repertory grid technique are provided in the Research Methodology chapter. In conclusion, in order to understand how home builders construe and make sense of the drivers/pressures to join a voluntary environmental program, an assessment of their personal constructs requires investigation.

2.5.4 Literature Synthesis - A Model of the Decision to Participate in a Voluntary Environmental Program and Gaps and Further Critical Analysis of the Literature

The following discussion will present a synthesis of the literature review resulting in a model of the decision to participate in a voluntary environmental program. Gaps in the existing literature and further critical analysis of the literature are also detailed.

Literature Synthesis - A Model of the Decision to Participate in a Voluntary Environmental Program

In the preceding sections, the research topic of understanding the construal and sense making of home builders on the drivers/pressures to participate in a voluntary environmental program (Built Green Canada) was positioned within the fields of environmental competitiveness, environmental drivers/pressures, voluntary environmental programs, and environmental decision making and planning (see Figure 2.1). By starting broad and focusing in, the existing literature related to the topic revealed a number of parallels and key themes in previous studies (albeit with some contradictory findings). In addition, the concepts of cognition, sensemaking and PCP/PCT were detailed to set the boundaries of how home builder cognition and decision making will subsequently be identified and described.

Porter and van der Linde's (1995) theory of environmental competitive advantage in conjunction with Hart's (1995) natural resource based theory of the firm laid the foundation of the idea that a firm's decision to go green could lead to increased competitive advantage through both cost reductions and differentiation leading to increased profitability for firms. While Palmer et al (1995) provided a critical rebuttal of this idea and a few empirical studies were inconclusive on the issue, subsequent empirical studies have generally found a positive relationship between environmental management and firm financial performance. With environmentally friendly business initiatives adding to the bottom line of numerous companies, the next area reviewed was the environmental drivers/pressures acting upon firms.

Bansal and Roth's (2000) Model of Corporate Ecological Responsiveness served as the framework to assess the literature on the internal and external pressures identified by environmentally proactive firms. These drivers and pressures included regulatory/legislative pressure, stakeholder pressure, competitive pressure and ethical motivations of the organization. A number of empirical studies were reviewed that were supportive of this model; however, a few studies also revealed a number of other findings that impact on a firm's ecological response (see Table 2.2). These factors included publicity, knowledge gain, firm size and attitudes. The findings on the drivers/pressures for firms to go green paralleled the subsequent discussion on voluntary environmental programs.

Voluntary environmental programs were defined, and it was determined that the Built Green Canada program met the criterion in that the program is not required by legislation, agreed to by the organizations involved, designed to influence behaviour, and it is applied in a consistent outcome (Webb, 2004). By linking the prior assessment of environmental drivers/pressures acting on firms with the notion of joining a voluntary environmental program, it is appropriate for this study to focus on voluntary participation in light of such drivers/pressures. Studies on voluntary environmental programs were assessed to determine that the drivers/pressures on firm's to participate were generally in alignment with the broader drivers/pressures to go green. This intuitively makes sense as the decision to join a voluntary program is a subset or possible course of action for a firm to take when adopting environmentally friendly strategies.

Drawing from a review of previously published research on voluntary environmental programs in Canada, Henriques and Sadorsky's (2008) main motivators of firm participation in voluntary environmental programs were explored. These main motivators (which parallel Bansal and Roth's work) include pre-empting or influencing government regulation, cost efficiencies, improving stakeholder relations, and knowledge gain. A number of empirical studies demonstrated general support of these main motivators; however, some studies identified additional factors and a few provided contradictions to some of the main motivators (see Table 2.3). Additional factors

identified included publicity, firm size, and prior track record. Contradictions were found with the idea of stakeholder pressure not acting as a driver to join a voluntary environmental program. In addition, a few studies offered insights to internal firm variables including corporate culture, leadership and incentives. The interplay of external drivers/pressures and internal factors lead to the next literature review section on environmental decision making in terms of motivations, cognition and sensemaking.

It is important to understand the thinking that underlies the decision to participate in a voluntary environmental program. Reviewing cognition and sensemaking lead to an approach of describing the environmental decision making process as a cognitive function subsumed in the decision makers sense of the drivers/pressures in the world going on around the manager. Sensemaking was described to provide the context for how a decision maker makes sense of influences on the organization, while cognitive processes were outlined as the mental process that the manager uses to select a course of action among alternatives. Finally, PCT was introduced as a method to frame and map a decision maker's cognitive process in making sense of drivers/pressure on the decision to participate. PCT also has an advantage in that it goes beyond motivation to focus on how decision makers make sense of and construe the drivers/pressures to participate in a voluntary environmental program. This is a key concept as the term motivation is imprecise without an understanding of the sense that managers make of the drivers/pressures to participate. Based on this synthesis, the following is a model of the decision to participate in a voluntary environmental program.

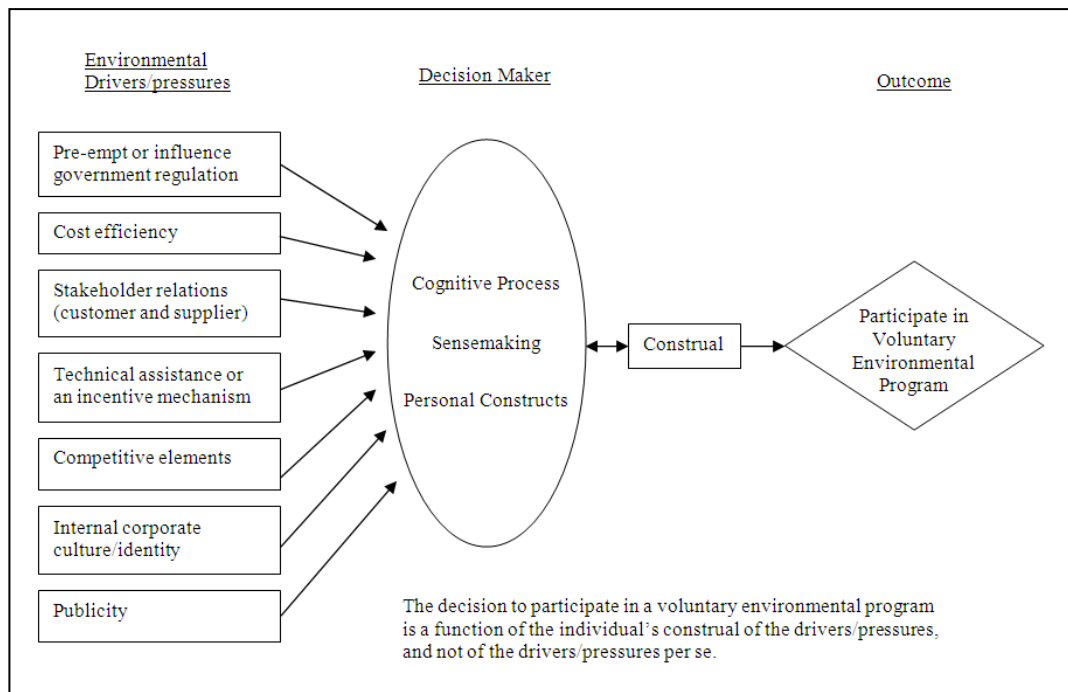


Figure 2.2: A Model of the Decision to Participate in a Voluntary Environmental Program

This model is solely focused on the decision to participate or join a voluntary environmental program by linking motivators identified in the literature with sensemaking and PCT.

Gaps and Further Critical Analysis of the Literature

This research is designed to provide a new context for understanding the decision to participate in a voluntary environmental program by examining the Built Green Canada program in the Alberta home building industry. This research is also designed to build on the existing research on why firms participate in voluntary environmental programs. It is focused on delving deeper into the issue than previous studies by building an understanding of home builders' thinking process and sense making of the strategic decision to join a voluntary environmental program by assessing their personal construal of the drivers/pressures on the issue. A number of researchers have identified the need for further research with respect to understanding environmental management and voluntary environmental program decision making.

Bansal and Roth (2000: 734) pointed to a weakness in their research in that it did not provide the ability to make valid speculations about the relative efficacy and prevalence of a firm's motivations, and they stated "A rich model of corporate ecological responsiveness requires consideration of the underlying motivations". Prakash (2001) called for a better understand of why managers have given sets of preferences and what values they hold on environmental issues as an area for additional research. Khana et al (2007) indicated a need for future research to gain a better understanding of the motivations and constraints to informal voluntary environmental actions by business. In addition, Howard-Grenville et al (2008: 73) stated, "Why some businesses choose to participate in such voluntary programs, while others do not, remains an open question". The Howard-Grenville et al study also mentioned the need for further studies to build a better understanding of the interactions between internal factors and external pressures in shaping a firm's environmental decision making. Finally, Paulraj (2009) identified a need for further research on this topic in terms of identifying additional motivational configurations using a broader set of variables as well as the need to focus on a few specific industries. Paulraj (2009) also mentioned that more research employing qualitative methodologies is needed to develop a better understanding of the nuances involved for environmental motivations.

In critically assessing prior studies on environmental motivations, the concern about social desirability bias also needs to be recognized. Social desirability bias is an issue with sensitive topics (e.g. firm environmental track record or motivations to go green) as there is a tendency by research participants to describe themselves in favorable terms by adhering to what are seen as more socioculturally sanctioned norms (Mick, 1996; De Jong et al, 2010). In other words, when researchers ask participants to report on their firm's environmental performance or motivations, participants may provide answers that cast them in a more favourable light from a societal perspective than is really the case. As De Jong et al (2010: 14) state, "Socially desirable responding has been recognized as a serious problem that can adversely affect the validity of studies in many social science disciplines." The issue of social desirability bias is not widely addressed in the empirical studies reviewed in this Chapter that were survey and/or interview based (e.g. studies by Henriques and Sadorsky (1996), Bansal and Roth (2000), Lynes

and Dredge (2006), Chen (2010), Dangelico and Pujari (2010)). This bias has the potential to adversely impact their validity. As discussed in the Research Methodology chapter (section 3.2.2), the repertory grid was chosen as the main research technique to help address the issue of socially desirable answers.

Another limitation of prior studies relates specifically to their external validity. Yin (2009) characterizes external validity as the extent to which a study's findings can be generalized. Studies which focus on specific industries, such as Chen's (2008 and 2010) examinations of the electronics industry, Lynes' and Dredge's (2006) focus on the airline industry, Dangelico's and Pujari's (2010) and Videras' and Alberini's studies on manufacturing companies, and Sharma's and Vredenburg's (1998) single industry context of the oil and gas industry may not be generalizable to the home building industry. Sharma and Vredenburg (1998) acknowledge this limitation when they note that environmental concerns may present themselves differently in different industries.

Furthermore, studies which focus on specific geographic locations such as Chen's (2008 and 2010) focus on Taiwan, González-Benito's and González-Benito's (2004) study on Spanish companies, Lynes' and Dredge's (2006) examination of Scandinavian airlines, Menguc' and Ozanne's (2005) study of Australian manufacturing firms may not be generalizable to the Canadian market. González-Benito and González-Benito (2004) highlight this notion when they speculate that their findings were influenced by different ecological pressures found in Spain. In addition, Mikler (2007) found that a firm's home country impacts their view on environmental management.

Building on these limitations outlined above, an additional gap in the literature with respect to this research relates specifically to a gap in the geographical and industry context. In this sense, previous research on environmental decision making has not occurred in the Canadian home building industry. Sharma and Vredenburg (1998) identified a need for further research on environmental strategy in additional industries where environmental concerns exist. These identified gaps form the basis of this

research. In addition, this research is applied in nature as it tries to address a practical concern for a specific industry.

Table 2.4: Summary of Referenced Studies Calling for Further Research on Environmental Management and Voluntary Environmental Program Decision Making (General to Specific)	
Author(s)	Area(s) for Further Research
Bansal and Roth (2000)	The Model of Corporate Ecological Responsiveness requires further consideration of the underlying motivations.
Sharma and Vredenburg (1998)	Additional industries where environmental concerns exist need to be studied.
Prakash (2001)	A better understand of why managers have given sets of preferences and what values they hold on environmental issues.
Khana et al (2007)	Improvements needed to understand the motivations and constraints to informal voluntary environmental actions by business.
Howard-Grenville et al (2008)	Uncovering reasons why firms participate in voluntary environmental programs; interactions between internal factors and external pressures in shaping a firm's environmental decision making.
Paulraj (2009)	Broader set of variables required to understand additional motivational configurations; focus on a few specific industries; more research employing qualitative methodologies is needed to develop a better understanding of environmental motivations.

Based on this, the following research questions and framework of analysis are presented.

2.5.5 Research questions, framework of analysis

The aim of the study: to understand the decision to take part in the Built Green Canada program.

As previously shown, the literature suggests a variety of influences on the decision to join, which can be regarded as a set of pressures, influences, and drivers towards that decision. The literature review also suggests that sensemaking theory, and particularly, the approach taken from Kelly's personal construct psychology, provide a good way of

examining how these pressures are handled, and that there is a great value in understanding the decision from the perspective of the participants themselves.

The objective is therefore to identify the ways in which participants construe and make sense of the drivers and pressures to join. This leads to two research questions in particular.

1. How do participating home builders construe and make sense of the drivers/pressures to which they are exposed in making the decision to participate in a voluntary environmental program (Built Green Canada)?

Taking a constructivist approach will provide insights on how decision makers ‘see’ or make sense of these drivers/pressures (Georg and Füssel, 2000). In addition, this question is designed to address a gap in the literature that was outlined by Paulraj (2009) related to the need for a broader set of variables required to understand additional motivational configurations along with the need for more research employing qualitative methodologies to develop a better understanding of environmental motivations.

Moreover, as it is intended to pay particular attention to the relative level of importance that home builders attribute to the drivers/pressures to participate which the literature suggests in general are important in voluntary environmental program participation, the first research question was elaborated into a second further research question:

2. To assess the relative level of importance of the drivers/pressures identified in the literature that decision makers in the home building industry attribute to their decision to participate in a voluntary environmental program (Built Green Canada).

This research question is drawn from the existing literature on the motivators driving participation in voluntary programs. Henriques and Sadorsky (2008) identified four main motivators as pre-empting or influencing government regulation, cost efficiency, improving stakeholder relations and the possibility of receiving technical assistance or

an incentive mechanism. As the previous review of the extant literature on voluntary environmental programs highlighted, support for main motivators identified by Henriques and Sadorsky (2008) is generally supportive but not unanimous as other authors have identified additional motivating factors (see Table 2.3). This question will help determine which motivators are applicable and important to firms in the home building industry.

In summary, the first research question is designed to gain an understanding of how home builders think and attribute meaning to their decision to participate in a voluntary environmental program. In other words, how they cognitively categorize the various drivers/pressures to participate. The second research question is designed to assess the relative level of importance that home builders attribute to the drivers/pressures to participate.

2.6 Chapter summary

As a review of the literature, this chapter was designed to bring focus to the research topic (Patton, 2002). This study takes place within the broad research field of environmental competitiveness. It also incorporates the research areas of environmental drivers/pressures, voluntary environmental programs, and environmental decision making and planning. The foundation of environmental competitiveness has been critically reviewed by focusing on two key theoretical articles by Porter and van der Linde (1995) and Hart (1995). A number of subsequent empirical studies have been examined that found general support for their theories. The literature on drivers/pressures for firms to 'go green' has also been reviewed within the context of Bansal and Roth's (2000) Model of Corporate Ecological Responsiveness. Empirical results from numerous studies have been analyzed to determine the key drivers/pressures for firms to 'go green'. Next, the literature on voluntary environmental programs has been critically examined within the context of Henriques and Sadorsky's (2008) review article on the main motivators on firm participation in voluntary environmental programs. As presented in the review, there are a number of

contradictory findings within the literature and no single theory has proven to be all encompassing and robust.

The literature review concluded with a review of the concepts of cognition, sensemaking and personal constructs (Personal Construct Psychology and Personal Construct Theory). These constructivist concepts have been detailed to set the framework of how home builder construal and sense making of the drivers/pressures on their decision to participate would be described.

A synthesis of the literature resulted in the development of a model of the decision to participate in a voluntary environmental program. Further critical analysis and identification of gaps in the existing literature was also provided. In conjunction, many researchers call for more detailed qualitative studies to get a better insight of the issues. The synthesis and gaps led to the development of the research objective and questions.

The next chapter presents the research methodology including the pilot study, methods, data collection and analysis.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter provided a critical review of the literature leading to the development of the research questions. This chapter provides a description, explanation and justification for the research design and methodology that has been utilized for data collection, analysis and reporting of results. This chapter also provides details of a pilot study conducted using the Repertory Grid Technique.

3.2 Research design and methodology

As presented in Figure 2.1, this study is situated within the broader field of environmental competitiveness. It also incorporates the research areas of environmental drivers/pressures, voluntary environmental programs, and environmental decision making and planning.

The aim of the study: to understand the decision to take part in the Built Green Canada program.

The objective is therefore to identify the ways in which participants construe and make sense of the drivers and pressures to join a voluntary environmental program and to assess the relative level of importance that home builders attribute to the drivers/pressures to participate. This leads to the following two research questions (that were formulated in the previous chapter):

1. How do participating home builders construe and make sense of the drivers/pressures to which they are exposed in making the decision to participate in a voluntary environmental program (Built Green Canada)?

and

2. To assess the relative level of importance of the drivers/pressures identified in the literature that decision makers in the home building industry attribute to their decision to participate in a voluntary environmental program (Built Green Canada).

The following approach has been chosen to investigate these questions.

3.2.1 Research paradigm

Based on the aim of this study and the research questions posed, the research paradigm that has been implemented is empirical, phenomenological, and constructivist utilizing a multiple case study approach.

Phenomenological and Constructivist

The epistemological stance of this research is interpretive in the phenomenological and constructivist research tradition. As the aim of this research is to identify the construal of drivers/pressures impacting decision making, a phenomenological and constructivist approach is appropriate.

According to Patton (2002: 482), “Phenomenological analysis seeks to grasp and elucidate the meaning, structure, and essence of the lived phenomenon for a person or group of people.” Furthermore, Snape and Spencer (2003: 12) define the aim of phenomenological research to “Understand the ‘constructs’ people use in everyday life to make sense of their world.” It is this very nature of personal constructs and sensemaking by decision makers in the home building industry that is the focus of this research. Developing an understanding of how individuals make meaning leads to the topic of constructivism. As discussed in section 2.5.2, a constructivist perspective of how the decision maker personally makes sense of their situation forms the basis of this study.

Constructivism involves the making of meaning. According to Crotty (1998: 9), “Meaning is not discovered but constructed.” Snape and Spencer (2003: 12) define

constructivism as, “Displaying ‘multiple constructed realities’ through the shared investigation (by researchers and participants) of meanings and explanations.” Kelly’s PCP embodies constructivist elements by providing an enunciation of an individually-based constructivist epistemology in the form of a theoretical statement (the Fundamental Postulate and 11 corollaries) (Kelly, 1955; Raskin, 2011). The construction corollary is one of the basic tenets of PCP and PCT (Butt and Burr, 2004). Kelly (1955) defined the construction corollary as, “A person anticipates events by construing their replications.” Basically, the construing process involves placing meaning or interpretation on events through internal representations which recognize recurrent patterns in experience (Kelly, 1955; Jankowicz, 2004). As detailed in section 2.5.3, Kelly’s PCP and PCT involves sensemaking as it is concerned with how people construct meaning out of events in a continuous and ongoing manner. The research methodology, detailed below, incorporates a constructivist technique based on PCT using the Repertory Grid Technique. Since this study endeavours to understand both constructs and the making of sense, it aligns with the phenomenological/constructivist epistemologies.

3.2.2 Research methodology

A research methodology plays a procedural role in helping frame a research topic and by providing a concrete guide for researchers (Seale et al, 2004). The following overview is a guide of the methodology and tools.

Multiple Case Studies

In terms of the research strategy, this research has used a multiple case study approach. Case studies are useful in business research as they contribute to our knowledge of individual and organizational phenomena (Patton and Appelbaum, 2003; Yin, 2009). In addition, a case study research strategy is useful when examining contemporary events over which the researcher has no control and when the research question is “why” due to the exploratory nature of this type of question (Yin, 2009). Multiple case studies also allow for cross-case analysis that facilitates deeper understanding and explanation (Miles and Huberman, 1994). Using multiple sources to build construct measures also

aids in establishing construct validity (Eisenhardt, 1989). Moreover, the multiple case study approach provides for an iterative process that is useful in creative reframing and building theory (Eisenhardt, 1989). The research questions related to the model on the decision to participate in a voluntary environmental program (Figure 2.2) align with questions of why and the development of deeper understanding that multiple case studies offer.

Yin (2009) describes the Case Study Method as an iterative process of theory development where each individual case consists of a whole study where analysis of predicted and contrasting results leads to the formulation of conclusions. Since multiple case studies link theory building with evidence from empirical observations, resultant theory is more likely to be empirically valid (Eisenhardt, 1989). Multiple cases also allow for a verification process through replication whereby cases can confirm emergent relationships or disconfirm the relationships providing an opportunity to refine and extend the developing theory (Eisenhardt, 1989; Yin, 2009). This replication approach to multiple case studies is a critical element of Case Study Method (Yin, 2009). In terms of replication for multiple case studies, Yin (2009) advises that cases must be carefully selected to either predict similar results (literal replication) or predict contrasting results (a theoretical replication). The approach of this study is the former, a literal replication in that it brings more cases of the same kind (i.e. multiple cases of home builder members of Built Green Canada). Yin suggests this is analogous to conducting multiple experiments to replicate an original finding. Increasing the number of literal replications, results in increased certainty (Yin, 2009).

A comparative case study approach was considered that would compare construing in firms participating in the Built Green Canada program with non-participants, but the previously mentioned literal replication technique was chosen instead due to accessibility issues and the nature of the research questions. In terms of accessibility, securing interviews from firms not participating in the voluntary environmental program was problematic. This relates to the issue of relevance which is positively correlated with response rates (Anseel et al, 2010). As Anseel et al (2010: 337) state, “Topic salience is a type of interaction between target population and researcher interest, and is

assumed to result in high motivation and involvement of the participants.” In other words, home builders who are not members of the Built Green Canada program have less interest in the program and as a result are less motivated to be involved in the research.

An initial attempt was made to contact 49 non-participating firms. From that group not a single firm was willing to conduct an interview (a zero percent response rate by non-participants). One of the contacted firms indicated they might be able to complete a brief survey, but were unwilling to do an interview. Lindebaum’s and Cassell’s (2012) study on emotional intelligence in the male-dominated construction industry highlights another contributing factor in that construction managers are less expressive; and this is no less so for the Canadian construction industry in particular, as shown in section 2.2 above. This could contribute to their reluctance to participate in research about perceptions and reflecting on one’s sense making.

In addition, as the research questions are focused on the construal of drivers/pressures impacting decision making to participate in the voluntary environmental program, a multiple case literal replication approach of participants in the Built Green Canada program was deemed most appropriate. In other words, this research is focused on construal of decision makers in a voluntary environmental program to address the gaps in the literature on this specific topic of only participating firms.

This approach is not without risk. Limitations of using multiple case studies in building theory include the development of overly complex theory and theories that are narrow in focus, in other words, modest theories about specific phenomena (Eisenhardt, 1989). This limitation poses a risk in this study as this research is focused on a specific voluntary environmental program (Built Green Canada) within the context of a specific industry and geography (new home building in Alberta). However, the use of multiple case studies is appropriate, due to the specific applied nature of this research. In addition, multiple case studies are warranted as there is an opportunity to provide further empirical substantiation, to provide freshness in perspective, and to offer new insights (Eisenhardt, 1989).

Case Selection

Since one of the aims of phenomenological and constructivist research (discussed above) is to gain an understanding and develop explanations, cases need to be selected to ensure the relevant organizations are included (Ritchie et al, 2003). It is important to note that selection of cases in multiple case study research is not the same as selecting a sample for inferential statistics (Patton, 2002; Yin, 2009). As Yin (2009: 15) points out, "...the case study, like the experiment, does not represent a 'sample', and in doing a case study, your goal will be to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization)." As generalizations are not automatic with a case study method, replication is required to provide strong support of a theory or model (Yin, 2009). As a result, multiple case studies provide for this replication logic. In terms of the sufficient number of cases for replication, Yin (2009: 58) states, "...if you want a high degree of certainty, you may press for five, six, or more replications."

Firms were selected from the Built Green Canada membership directory of builder members. Limiting participation to Built Green Canada members is required as it is the focus of this research. Patton (2002) would describe this technique as a purposeful sample. According to Patton (2002: 40) purposeful sampling involves, "Cases for study are selected because they are 'information rich' and illuminative, that is, they offer useful manifestations of the phenomenon of interest..." The impact of using a purposeful sample is that generalizations and representativeness of the entire home building industry would be limited, but careful deduction to regions where residential construction firms have similar characteristics may be possible (Patton, 2002). This compromise is acceptable as the topic of this research is participation in the Built Green Canada program and the intended aim of this research is geographically focused and not specifically targeted beyond the region.

In addition, a prescribed selection criterion has been implemented to limit the case selection to current Built Green Canada members located within the Calgary-Edmonton

corridor (within a 160 kilometre radius of Red Deer, Alberta). This decision to limit the geographical reach of the study was due to the face-to-face nature of Repertory Grid Technique interviews requiring the researcher to meet interviewees in person. Miles and Huberman (1994) referred to this as the need to set boundaries within the limits of a researcher's time and means. While this was a convenience sampling approach, it should be noted that the Calgary-Edmonton corridor accounts for over 80 per cent of the new home construction in Alberta (Canada Mortgage and Housing Corporation, 2011). The net result is that 126 firms were contacted and invited to participate in the research out of a total of 179 Built Green Canada home builder members in Alberta. This target group represents 70.4 percent of the Alberta population of home builders participating in the program.

Five supported techniques of improving response rates were utilized to gain access for the interviews including advance notice, follow-up, personalization, relevance and sponsorship (Cycyota and Harrison, 2002; Dillman et al, 2009; Anseel et al, 2010). Advanced notice was obtained by sending potential participants an introductory e-mail outlining the nature of the research and supporting documentation. This was followed-up by a personal e-mail to the firm's president or Chief Executive Officer again outlining the nature of the research with an invitation to participate in interviews. A telephone call or voicemail message was also left with each firm to notify them of the previously mentioned e-mails and to further inform them of the research. Finally, all correspondence with potential participants included mention of support from Built Green Canada and the Canadian Home Builders' Association - Central Alberta as well as the researcher's affiliation with Red Deer College.

According to Patton (2002), there are no specific rules for the number of cases in multiple case study research of this nature. Judged in terms of both the constructivist nature of the research and the information richness of the cases (Patton, 2002), and the small number of cases in previous studies using the Repertory Grid Technique (Brown, 1992; Diaz de Leon and Guild, 2003; Rogers and Ryals, 2007; Dima, 2010), 30 cases was deemed reasonable and allowed for the necessary number of constructs for analysis. Moreover, Eisenhardt (1989) mentioned that while there is no ideal number of cases in

phenomenological/constructivist research, a number between 4 and 10 cases is usually ideal, and this study exceeded that number. In total, 32 participants agreed to be interviewed representing a 25 per cent response rate (see Chapter 4).

Using Thomas' (2011) typology for the case study, the subject of this research is home builders that are members of the Built Green Canada program, while the object of this research is the construal of the drivers/pressures of the decision to participate. In this sense based on the research questions, the unit of analysis in this study is not the firm or decision maker per se, but rather the construct. These constructs are both the content unit and the context unit of analysis (Jankowicz, 2004). The unit of analysis defines what the case is (Yin, 2009). According to Yin (2009: 30), "...your tentative definition of the unit of analysis (which is the same as the definition of the 'case') is related to the way you have defined your initial research questions." As presented earlier, the research questions are focused on the construal of the drivers/pressures that impact the decision maker's thinking. Each construct represents a single unit of meaning (Jankowicz, 2004). In other words, the unit of analysis is the construct, not the decision maker nor the company, and thus the main content analysis of the study focuses on the constructs. These constructs have been identified using the Repertory Grid Technique.

Repertory Grid Technique

This study used the Repertory Grid Technique (RGT) to collect data in a constructivist approach. As previously mentioned, the repertory grid is a technique that was developed by psychologist George Kelly as an instrument for eliciting personal constructs (Kelly, 1955 and 1963). According to Neimeyer et al (2002: 161), "...the repgrid has become the primary tool for researchers in personal construct psychology." In this line, the RGT is a method for 'going beyond words' and represents PCT in action (Fransella et al, 2004). The repertory grid also serves as a cognitive mapping tool (Tan and Hunter, 2002; Fassin and Van Rossem, 2009) that provides for a precise and explicit articulation of an individual's personal constructs (Jankowicz, 1987). This mapping and expression of how decision makers construe drivers/pressures to participate is essential to answering the research questions.

The RGT is also in alignment with the research questions as it is consistent with an interpretive perspective with the aim of understanding how decision makers make sense of the influences on their decision to participate in the program (Fransella et al, 2004; Fassin et al, 2011). In this sense, the RGT in this study serves as the primary interview/data collection system to perform the analysis of the constructs underlying the decision to participate in the program. By having the interviewees involved in the development of the constructs, a deeper understanding of their constructs and sensemaking has been developed. In addition, the RGT is consistent with an interpretive approach and it helps facilitate the drawing of knowledge structures (Fassin et al, 2011). The RGT is also congruent with applied research (Fassin et al, 2011).

The RGT also adds an element of qualitative content analysis and categorization with quantitative statistical measures (Marsden and Littler, 2000; Fassin, 2011). As Fransella et al state (2004: 13), “The great advantage of the grid is that data from a single individual can be subjected to many of the types of group statistics we have hitherto reserved for populations of people.” By collecting both qualitative and quantitative data at the same time, a concurrent triangulation strategy approach is possible (Creswell, 2003). Concurrent triangulation uses two different methods (in this case qualitative and quantitative) to help confirm findings in a single study (Creswell, 2003).

Other advantages of the RGT are that this investigative technique helps remove the influence of the researcher’s frame of reference on the observations (Diaz de Leon and Guild, 2003). According to Rogers and Ryals (2007) in their study of business to business relationships, the value of the repertory grid in business research is that it allows for exploring topics that are not well defined and it assists researchers in capturing interviewees’ perceptions of nebulous concepts. By having the interviewees involved in the development of the constructs, a deeper understanding of the nebulous concept of environmental drivers/pressures and decision making has been developed. In addition, marketing research has found the RGT as a useful precursor to the

development of standard rating scale survey instruments where the issues to be scaled are not initially known (Honey, 1979; Marsden and Littler, 2000).

The RGT is also a method proven to minimize researcher bias compared to other mapping methods (Fassin et al, 2011). In other words, as the constructs are elicited from the interviewee and meaning is negotiated, it is the interviewee's thinking and values that are revealed (in that they are not a result of the researcher's frame that is applied or introduced through the wording of the questions).

In addition, the RGT is useful for addressing the research questions as RGT has a way of uncovering the insights of individuals that inform their decision making while an in-depth interview may not access the underlying reality of the situation (Rogers and Ryals, 2007). Also making the RGT appropriate is that it is a tool that can bring forth the thinking that participants possess but are unable to articulate (Diaz de Leon and Guild, 2003). Furthermore, Rogers and Ryals (2007) mentioned that the technique allows the researcher to get beneath what an interviewee might view as the right answer. In this sense, RGT is useful to address social desirability bias with interviewees (Jankowicz, 2004). Finally, the RGT is also appropriate for this study as it has proven successful in business research related to market research, business ethics, and organizational and business applications (Fransella et al, 2004; Jankowicz, 2004; Fassin et al, 2011).

Details of the procedures used in the RGT can be found in section 3.2.3.

3.2.3 Data collection and analysis

In alignment with the phenomenological and constructivist research paradigms, data has been collected through face-to-face interviews. All interviews commenced with a description of the study as well completion of informed consent. The first part of the interview involved a semi-structured/interview guide approach (see Appendix A). This ensures that the same basic line of questioning was taken with each participant and to make the best use of participant time (Patton, 2002). The first phase of the interview

was designed to be brief and collect background information about the firm. The second phase of the interview involved the RGT.

Data Collection: Repertory Grids

As previously discussed, the interpretive and constructivist approach aimed at understanding the sense that decision makers make of the influences on their decision to participate in the voluntary environmental program is appropriate for answering the research questions. Following principles of PCT, the RGT has been identified as the data collection tool. The personal constructs identified through the RGT provide for cognitive mapping of the construal process by the decision makers to better understand their knowledge structures. A summary of RGT including its appropriateness for this research was previously outlined. This section will provide an overview of the use of the RGT for this study including the basic procedures that have been followed to elicit the decision maker's personal constructs.

In terms of specific methodology for RGT, a multistep process has been used for completing the repertory grids (Fransella et al, 2004; Jankowicz, 2004; Rogers and Ryals, 2007):

- 1) The topic for the grid was identified. In this study, it is the drivers and pressures that led to the decision to participate in the Built Green Canada program.
- 2) Elements were provided and explained. The elements are the drivers/pressures identified in the literature that has been examined (see Chapter 2).
- 3) Constructs were elicited from triading elements. This involves selecting three elements at random and soliciting feedback from participants for ways in which two are similar and different from the third.
- 4) The construct was presented as a rating scale and respondents rated each of the elements.
- 5) The process (steps 3 and 4) was repeated to generate new constructs until no new constructs were elicited.

Throughout the elicitation of constructs, the technique of laddering down was used to improve the specificity of the constructs (see Jankowicz, 2004). Basically this technique involves asking further questions along the lines of ‘how’ or ‘in what way’ or ‘how can I tell’ in order to further specify the constructs. Results from the interview were recorded in a repertory grid matrix template that was prepared in advance of the interviews (see Appendix B). Although there are other variations in repertory grid procedures, such as monadic and dyadic elicitation (Neimeyer et al, 2002), a triadic difference elicitation method was chosen. The triadic difference elicitation is Kelly’s (1955) original technique, and it remains the traditional repertory grid procedure method used today (Neimeyer et al, 2002). This method has also been shown to result in higher levels of construct system differentiation (Neimeyer et al, 2002).

Elements

According to Kelly (1955: 137), “The things or events which are abstracted by a construct are called elements.” In other words, an element is an example of the topic (Jankowicz, 2004). In choosing elements, it is important that elements should be within the range of convenience of the constructs used and they should be representative of the area being studied (Fransella et al, 2004). In other words, elements must be in context. Elements can either be solicited from the interviewee or provided by the researcher (Jankowicz, 2004). According to Fransella et al (2004: 21), “It is common practice for the elements to be provided by the grid designer...” As the focus of this study is to describe and understand the construal and sense making of influences on the decision to participate in a voluntary environmental program, the elements provided were the drivers/pressures indicated in the literature that motivate firms to participate in these programs. For greater precision in the interviews, two of the drivers/pressures identified in the literature were further specified into distinct element categories. The concept of stakeholder relations identified in the literature was further specified into separate customer and suppliers/trades element categories. In addition, the concept of receiving technical assistance or an incentive mechanism was categorized into its two separate components of knowledge gain and incentives. Finally, an element identified in a preliminary interview with a home builder prior to the piloting of the study (i.e.

obtaining third party certification) was included in the study. Overall, the elements were in context and provided (see Table 3.1 below).

Table 3.1 – Elements	
Code	Element
E1	Pre-empting/influencing government legislation (e.g. building code changes)
E2	Creating cost efficiencies for your organization
E3	Handling competition
E4	Appealing to customers
E5	Responding to suppliers/trades
E6	Acquiring technical knowledge
E7	Accessing Government/CMHC Incentives
E8	Obtaining publicity
E9	Building corporate culture/identity
E10	Obtaining third party certification

Constructs

In the RGT, constructs can either be elicited or supplied (Fransella et al, 2004; Jankowicz, 2004). Either way according to Fransella et al (2004: 46), “...what is essential is that the labels are meaningful to the person.” The Individuality Corollary in Kelly’s basic theory states (1955: 55), “Persons differ from each other in their construction of events.” Applying this concept, RGT is designed to find out how the interviewee personally makes sense of or defines their thinking (Honey, 1979; Tan and Hunter, 2002). To ensure that the constructs are meaningful to the interviewees and to stay true to the PCT’s Individuality Corollary, constructs were elicited.

One construct was provided at the end of each interview as an ‘overall summary construct’. This was worded ‘Overall, important to my decision to participate - Overall, less important to my decision to participate’. Its purpose was twofold. First, to indicate the relative importance of constructs to the individuals who provided them, in the content analysis used to aggregate them across the sample as a whole– following a technique developed by Honey (1979), as described below. This addresses the first

research question. Second, to allow for an assessment of the relative importance of each of the elements– in other words, to provide a way to determine which drivers/pressures are important to the home builders– which answers the second research question.

Data Analysis

Once the data was collect through the RGT, the main focus was on aggregate grid data analysis. Yin (2009: 126) described data analysis as the, “...examining, categorizing, tabulating, testing or otherwise recombining evidence to draw empirically based conclusions.” As Miles and Huberman (1994) mentioned, data is analyzed to first describe then explain the answer to the research question. In this sense, the findings from the RGT interviews have been analyzed in line with prescribed methodologies involving both individual (within-case) for the pilot study and aggregate grid (cross-case) analysis for both the pilot and main study (Jankowicz, 2004). By conducting both within-case and cross-case analysis, not only did the examination provide an understanding of the construal of drivers/pressures within individual decision makers, but cross-case analysis provided for even deeper understanding and to some extent generalizeability (Miles and Huberman, 1994).

Content Analysis (Aggregate Grid Analysis)

Although the repertory grid was designed for individual clinical psychology use, business researchers have used the technique to interpret the constructs in groups (Rogers and Ryals, 2007). The individual grid analysis techniques performed in the pilot study utilizing cluster analysis and principal component analysis (see section 3.3) were not the data analysis technique used for the main study. While the analysis of individual grids provides very useful information about each individual interviewee’s constructs, it becomes problematic for making comparisons across multiple grids. When individual grid analysis techniques are used to draw out similarities and contrasts between multiple grids, the amount of information grows exponentially as the sample size grows (Jankowicz, 2004). Therefore, the focus of the main study has been to look at comparisons between grids using content analysis (aggregate grid analysis).

Content analysis is a sensemaking effort that attempts to identify core consistencies and meaning (Patton, 2002). According to Patton (2002: 453), “The core meanings found through content analysis are often called patterns or themes.” Content analysis can be used to analyze aggregate RGT interview data. According to Jankowicz (2004: 148), “Content analysis is a technique in which the constructs of all interviewees are pooled, and categorized according to the meanings they express.” In this sense, the aggregate RGT interviews are analysed to look for patterns in how decision makers construe the drivers/pressures to participate in a voluntary environmental program and how they make sense of that decision. The content analysis techniques used to analyze the RGT interview grids comprises both Honey’s (1979) Content Analysis procedures and Bootstrapping Techniques as detailed by Jankowicz (2004).

Although other techniques have been used to aggregate meaning from RGT interviews, such as Wright’s (2004) collective super grid approach, a content analysis was used as it aligns best with Kelly’s (1955) view of constructive alternativism. In this sense, treating a collective super grid of average ratings as a single person, as described by Wright (2004), creates an ‘average person’ that does not really exist resulting in a loss of the individuality of the different interviewee’s grids. As outlined below, aggregating the meaning present in the whole sample through a content analysis using Honey’s (1979) procedure preserves the information about each individual’s view in terms of how they personally think about the topic (Jankowicz, 2004).

Content Analysis - Honey’s (1979) Procedure

Honey’s (1979) technique provides for a content analysis of multiple grids based on the relative importance of constructs by utilizing a supplied construct that was common to all of the grid interviews. In this study the supplied construct was ‘Important to my decision to participate – Less important to my decision to participate’. Not only does this supplied construct provide an overall summary of the interviewee’s views of each element, it also provides the ability to assess the level that ratings on the elicited constructs match the ratings on the overall supplied construct. This involves calculating

percent similarity scores for each elicited construct with respect to the overall supplied construct (Jankowicz, 2004). Basically the procedure involves computing the sum of differences for each element rating between each elicited construct and the supplied overall construct. This is repeated with the overall supplied construct 'reversed' to take into account the bipolar nature of each construct. The smaller sum of differences (between the reversed and un-reversed calculations for each construct) is then converted into a construct percent similarity score. For the main study, the sum of differences and percent similarity scores were calculated using Microsoft Excel. The percent similarity scores were calculated using a 200 point scale to show relationships. See Jankowicz (2004) for further details on the computing sums of differences and calculating percent similarity scores.

The next step in Honey's (1979) technique is to take the interviewee's personal metric into account by dividing up their constructs into thirds. These groupings account for the constructs with the highest percent similarity scores, intermediate percent similarity scores, and lowest percent similarity scores. These are also known as H-I-L values or as Honey (1979) referred to them as 'top' and 'tail' data (with an untouched middle). The labelled and scored constructs are then categorized for analysis using the Bootstrapping Technique. The assignment of H-I-L values allows for the aggregation of the grid data representing the categorised views of all the interviewees while preserving each individual's view of the topic (Jankowicz, 2004). In this sense, a percent similarity score of, e.g., 80% may be high for one person but low for another, and the H-I-L value coding will preserve this information to aid in the drawing of conclusions from the content analysis (Jankowicz, 2004). See Figure 3.1 below for a worked example of Honey's (1979) technique.

Example of Honey's (1979) technique for two of the interviewees.

Constructs reordered according to the Percent Matching Score (%MS) of their ratings with ratings on the Supplied construct.
H-I-L values indicated for each interviewee.

Interviewee 14											Interviewee 17														
Construct code	Ratings for each element										%MS	H-I-L value	Construct code	Ratings for each element										%MS	H-I-L value
	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10				E1	E2	E3	E4	E5	E6	E7	E8	E9	E10		
Supplied	1	5	3	1	3	1	3	1	1	1	-	-	Supplied	3	5	1	1	5	1	3	2	2	2	-	-
14.7	1	3	2	1	3	1	2	1	2	1	75	H	17.1	2	4	1	2	5	1	4	3	3	2	70	H
14.8	1	1	1	1	3	1	4	1	1	1	65	H	17.3	3	3	3	2	4	1	5	2	2	2	60	H
14.9	5	5	1	1	1	1	3	1	1	1	60	H	17.6	3	5	3	3	4	1	3	1	3	3	60	H
14.1	1	5	3	3	4	1	3	4	2	3	55	I	17.4	1	3	1	2	2	1	4	2	1	1	45	I
14.3	2	1	2	1	4	1	3	2	2	1	55	I	17.2	1	2	2	3	4	1	5	3	2	2	40	I
14.5	1	1	2	1	4	1	2	1	1	3	55	I	17.5	1	5	3	3	4	2	4	3	3	3	40	I
14.2	3	4	4	2	4	1	4	2	2	2	50	L	17.7	1	3	4	5	2	1	3	5	3	2	30 (rev)	L
14.4	1	3	1	1	4	3	2	1	1	3	50	L	17.9	4	4	2	1	3	4	5	1	2	5	30	L
14.6	2	2	4	5	3	2	3	4	2	3	30	L	17.8	4	3	2	1	2	5	5	2	3	4	20	L

The %MS score is given by $100 - ((200 \sum d) / ((r-1)e))$ where $\sum d$ is the sum of differences between the rating for each element on the supplied construct and each elicited construct, r the maximum rating value and e the number of elements over which the differences are summed. rev = reversed (see Jankowicz, 2004: 108)
The H-I-L values preserve the interviewee's particular view of the topic's importance. For example, Construct 17.2 with a percent matching score of 40 is of intermediate importance for interviewee 17, while Construct 14.4 with a percent matching score of 50 is of low importance for interviewee 14.

Figure 3.1: Example of Honey's (1979) Technique

Bootstrapping Technique (categorizing the constructs)

The Bootstrapping Technique has been utilized to categorize the constructs. Specifically, the Core-Categorization Procedure was employed (Jankowicz, 2004: 149). This technique has been used instead of a standard or theory based categorization scheme in order to leave the analysis more open. The basic steps in a Core-Categorization approach involve comparing each construct with the others to create groupings of similar categories until all the constructs have been categorized. The goal is to have no more than 5% of the constructs classified into an ‘other’ or ‘miscellaneous’ category (Jankowicz, 2004). The reliability of the Core-Categorization Procedure has been assessed to ensure that the category system makes sense.

The goal of reliability in a study is to minimize errors and biases (Yin, 2009). This involves the content-analysis reliability procedures detailed by Jankowicz (2004: 155-163). Reliability is determined by having another researcher complete the Core-Categorization Procedure to produce a second category system of the grid interviews. Next, the original and second grids are assessed to identify the level of agreement and disagreement between the two categorizations via a reliability table. The method is designed to assess the level of agreement on both the category definitions and the allocation of the constructs. The level of agreement in the reliability table is determined, and the reliability table and category definitions are discussed to negotiate

meaning in an iterative process until a benchmark of 90 percent agreement is reached (Jankowicz, 2004). A reliability figure has also been calculated using Cohen's Kappa (Cohen, 1960) and the Perreault-Leigh Index (Perreault and Leigh, 1989). The benchmark for these measures of inter-rater reliability would be 0.80 or better (Jankowicz, 2004).

The final step in the procedure is to summarize the categorization table results. Constructs (including frequencies) within categories are assessed to determine themes. H-I-L values can be used, in conjunction with the frequency count of constructs within each category, to determine the relative importance of the categories. High H-I-L values indicate the idea behind the category is important to the individual while low H-I-L values indicate less relevance to the individual (Jankowicz, 2004). Basically this analysis has been designed to identify and describe the construal of the drivers/pressures of the decision to participate in the voluntary environmental program by identifying the constructs that are shared by many decision makers (frequency) and the constructs that are relatively important to them (percent similarity score and H-I-L value on the supplied overall construct).

3.2.4 Ethical considerations

According to Ryen (2004), the three main issues in ethical research are consent, confidentiality and trust. In addition, Lewis (2003) added the issue of protecting the participant from harm. The research in this study has adhered to the highest ethical principles with respect to human research ethics in accordance with the ethical policies of Heriot-Watt University and Red Deer College. A certificate of compliance from the Red Deer College Research Ethics Board was obtained prior to the collection of any data (see Appendix C). Informed consent was achieved by ensuring that all participants understood that their participation was voluntary, that they agreed to any specific disclosure that may be required, and that they were fully aware of and consent to any risks. A statement of informed consent was provided to the interviewees prior to any data collection (see Appendix D). The statement of informed consent included information that participation is voluntary, they may choose not to answer all questions, they have the right to stop the interview if they feel uncomfortable, and that

confidentiality and anonymity is ensured. In addition, due to the proprietary business nature of the questions, confidentiality and anonymity were safeguarded. All participants were ensured of the confidentiality of the results as well as anonymity. As a result, all findings are anonymous and participants' names are kept confidential. The identity of participants are known only to the researcher, and in the reporting of results, participants were not identifiable. Finally, based on the nature of this study, there was no harm or risks to participants.

3.3 Pilot study

A pilot study involving two decision makers was conducted to test and refine the data collection and analysis techniques, specifically the use of the RGT. In addition, the pilot study provided support and justification for the methodology in the main study.

The objectives of the pilot study included:

1. To identify the types of constructs that decision makers in the home building industry use to construe participation in a voluntary environmental program (Built Green Canada).
2. To assess the supplied elements.
3. To determine a typical number of elicited constructs for the interviews.
4. To gain proficiency with the RGT.
5. To practice content analysis with its associated reliability check/improvement procedures.

In summary, the pilot study was intended to help refine the number and types of constructs that impact the decisions to participate in a voluntary environmental program in the home building industry as well as assess the suitability of the proposed primary data collection technique (RGT). Details of the methodology, data analysis and results from the pilot study follow including the implications for the main empirical work of this study.

3.3.1 Method

The pilot study involved interviews with two decision makers. The individuals were selected based on their willingness to participate in this study, their participation in voluntary environmental programs (Built Green Canada), and their active involvement in new home building in the Central Alberta region. The selection of the pilot cases matched with Yin's (2009: 93) assertion that "In general, convenience, access and geographic proximity can be the main criteria for selecting a pilot case or cases."

All interviews commenced with a description of the study and all interviewees were provided with an informed consent document (see Appendix D). The first part of the interview involved a semi-structured/interview guide approach (see Appendix A). This ensured that the same basic line of questioning was taken with each participant and to make the best use of participant time (Patton, 2002). The first phase of the interview was designed to be brief and collect background information about the firm. The second phase of the interview involved the RGT (see 3.2.3 for details on the repertory grid interview technique). The final stage of each pilot interview was to be devoted to assessing the personal values of the interviewees. A technique called ‘laddering up’ was planned to be used to arrive at values (see Jankowicz, 2004). Results from the interview were recorded in a repertory grid matrix template that was prepared in advance of the interviews (see Appendix B).

3.3.2 Data Analysis

The pilot study repertory grids were analyzed following the procedures detailed by Jankowicz (2004) for analyzing both relationships within a single grid and analyzing more than one grid. WebGrid 5 (Gaines and Shaw, 2010) and Microsoft Excel 2007 were utilized in the data analysis.

An individual analysis of each pilot grid was undertaken involving cluster analysis and principal component analysis. These techniques are commonly used in the analysis of individual grids (Jankowicz, 2004). A content analysis using Honey’s (1979) technique was conducted for analyzing the aggregate constructs from both pilot study grids utilizing the supplied overall construct (important to my decision to participate).

3.3.3 Results

The pilot interviews each took approximately one hour to complete. The repertory grid results of the pilot interviews including the elicited constructs, the rating of each element against the construct, and the rating of the elements against the supplied overall construct are presented in Appendix E and F.

Nine constructs were elicited during each pilot interview for a total of 18 constructs. Based on these results, it was anticipated that 8 to 10 constructs would be attainable in future interviews. This number coincides with the typical number of constructs generated in an RGT interview (Jankowicz, 2004) as well as the number of constructs elicited in other RGT business studies (Diaz de Leon and Guild, 2003; Rogers and Ryals, 2007; Fassin et al, 2011). The number of constructs elicited during the interviews would indicate that around 30 RGT interviews would be required in the main study to attain the 250 to 300 constructs necessary for a content analysis.

In terms of the supplied elements, both interviewees found them to be comprehensive, representative, and they were unable to provide any further additions when asked.

Cluster Analysis

The results of the cluster analysis, that identifies the way in which each decision maker structured their thinking about their decision to participate in the voluntary environmental program, are detailed in Appendix G.

A summary of the cluster analysis key results for the elicited constructs is presented in Table 3.2 that follows. In addition, a summary of the cluster analysis key results for the supplied elements is provided further below in Table 3.3. The scores in the third column of each table (Cluster % Level of Similarity) indicate the lowest degree of similarity between the ratings for constructs/elements constituting the cluster.

Table 3.2 Pilot Study Interviews – Cluster Analysis Summary of Constructs			
Pilot Interview	Cluster	Cluster % Level of Similarity	Construct
1	A	90%	pushing the envelope (product efficiency and affordability) – standard code built home differentiate the firm (outstanding quality) – routine practice (standard quality) operational/logistic efficiencies – administrative activity innovation in the marketplace – widely available
	B	90%	promoting change – difficult (resistant to change trust (capitalizing on the name of the program) – disagreement with program criteria
	C	90%	key environmental focus – business practice getting ahead of the curve – ongoing (all the time focus)
2	A	95%	differentiates the company – not relevant (no impact) primary impact (main benefit) – incidental (side effect)
	B	90%	raise awareness (industry) – little public awareness improve industry standard – industry regresses
	C	85%	revenue focus – cost focus marketing aspect – operational aspect
	D	80%	greenwash (popular) – legitimacy (real change) long term focus - short term focus

Table 3.3 Pilot Study Interviews – Cluster Analysis Summary of Elements			
Pilot Interview	Cluster	Cluster % Level of Similarity	Element
1	A	90%	handling competition appealing to customers acquiring technical knowledge obtaining publicity building corporate culture/identity
	B	75%	pre-empting/ influencing government legislation (e.g. building code changes) creating cost efficiencies for your organization accessing government/CMHC incentives
2	A	85%	handling competition appealing to customers obtaining publicity building corporate culture/identity obtaining third party certification
	B	80%	pre-empting/ influencing government legislation (e.g. building code changes) creating cost efficiencies for your organization responding to suppliers/trades
	C	75%	acquiring technical knowledge accessing government/CMHC incentives

For the cluster analysis summary of the constructs from the pilot interviews, the first interviewee's constructs clustered into three groups with the constructs in each being matched somewhat higher than the four groups that the second pilot interviewee provided. In terms of the cluster analysis summary of the elements, the analysis of the first pilot interviewee's elements revealed two clusters while there were three for the second pilot interviewee. The clusters with the highest Cluster % Level of Similarity scores for each interviewee had four elements in common.

Principal Component Analysis

Principal component analysis provides for a measure of cognitive complexity (Diaz de Leon and Guild, 2003; Fransella et al, 2004). The principal component graphs from the pilot study interviews are found in Appendix H.

The percentage of variance for the first two components in Pilot Study Interview Number 1 was 75.6 percent while for Pilot Study Interview Number 2 it was 81.9 percent. The higher the variance accounted for by the first two principal components, the lower the cognitive complexity, since it implies that one needs fewer distinct components to account for the total variety in a person's thinking (Diaz de Leon and Guild, 2003). This indicates that the first interviewee has a slightly higher cognitive complexity on the issue to participate in a voluntary environmental program. Generally speaking, though, these both represent a fairly low level of cognitive complexity indicating that relatively few themes dominate each interviewee's thinking about the topic.

Content Analysis (Aggregate Grid Analysis)

As the focus of the main study is to look at comparisons between grids using content analysis (aggregate grid analysis), the data of the pilot interviews was subjected to the same content analysis procedures that are proposed in the main study (see Section 3.2.3 for a full description of content analysis and the procedures that are proposed to analyze the RGT interviews). This provided for practice of the content analysis techniques

along with its associated reliability check/improvement procedures. The content analysis of the pilot study is indicative only, as there were only two RGT interviews completed. As previously mentioned, it has been proposed that the main study comprise of around 30 RGT interviews providing for more insights and further depth of analysis.

The reliability of the classification system was also assessed with the involvement of an additional researcher. The original classification scheme resulted in a 66.6 percent agreement score. After further discussion and a negotiation of the meaning of the construct categories, the reliability check was repeated with an agreement of 94.4 percent. This reliability check exceeds the target reliability figure of 90 percent (Jankowicz, 2004). The reliability results of the content analysis are only indicative, but they did provide a useful practice of the technique and will help to ensure reliability in the main study's content analysis.

The results of the content analysis are presented in the following table:

Category	Code	Constructs	Percent Similarity	HIL Value	Number of Constructs	Percent Number of Constructs	Average Percent Similarity Score	Percent of Scores with H
Marketing	P2.4	marketing aspect - operational aspect	70	H	4	22.2%	62.5	75%
	P2.7	raise awareness (industry) - little public awareness	60	I				
	P1.5	trust (capitalize on name) - disagreement with criteria	60	H				
	P1.7	incentive for customers to build with you - no customer impact	60	H				
Innovation/Change	P1.1	getting ahead of the curve - ongoing all the time focus	45	L	4	22.2%	52.5	25%
	P1.3	innovation in the marketplace - widely available	40	L				
	P1.8	pushing the envelope (product efficiency and affordability) - standard code built home	75	H				
	P1.6	promoting change - resistance to change	50	I				
Environmental Benefit	P2.3	primary impact (main benefit) - incidental (side effect)	85	H	4	22.2%	52.5	25%
	P1.4	key environmental focus - business practice	40	L				
	P2.9	greenwash (popular) - legitimacy (real change)	30	L				
	P2.8	improve industry standard - industry regresses	55	I				
Operations	P2.6	revenue focus - cost focus	65	I	4	22.2%	53.8	0%
	P1.9	operational/logistic efficiencies - administrative activity	50	I				
	P2.1	firm's focus - industry focus	55	I				
	P2.5	long term focus - short term focus	45	L				
Differentiating Strategy	P1.2	differentiate the firm based on quality - routine standard practices	60	H	2	11.1%	75	100%
	P2.2	differentiates the company - not relevant (no impact)	90	H				
Total					18	100%		

Table 3.4 highlights the types of results that will be reported in the main study from which inferences will be drawn. The content analysis of the two pilot RGT interviews

revealed five construct categories or themes. These include Marketing, Innovation/Change, Environmental Benefit, Operations, and Differentiating Strategy.

The fourth column in the table (Percent Similarity) shows the extent of agreement between each elicited construct and the supplied overall construct (see Honey's (1979) procedure as detailed in section 3.2.3). These Percent Similarity scores together with H-I-L Values provide the basis for choosing constructs that best represent the aggregate view within the sample of respondents. As previously indicated the pilot study is indicative, and too many conclusions should not be drawn from only two RGT interviews. What is clear; however, is that the table highlights the relative importance of the various constructs of the drivers/pressures of the decision to participate and that patterns in thinking are evident in terms of the construct categories. For example, if one were looking for a construct that best represented the 'Innovation/Change' category, it would be the construct 'pushing the envelope (product efficiency and affordability) – standard code built home' with its Percent Similarity score of 75% and an 'H' for its H-I-L Value. This construct is both highly matched with the interviewees understanding of the purpose of the grid as summarized by the overall supplied construct (75% compared to lower values in that cluster) and represents a high (H) personal salience.

3.3.4 Pilot Study Conclusion

The pilot study was designed to test and refine the data collection and analysis techniques, specifically the use of the RGT. The pilot study also provided an early look at the constructs of decision makers in terms of their construal of the drivers/pressures on their decision to participate in a voluntary environmental program.

The objectives of the pilot study were addressed as follows:

1. To identify the types of constructs that decision makers in the home building industry use to construe participation in a voluntary environmental program (Built Green Canada).

The content analysis of the two pilot RGT interviews (see Table 3.3) provides an early indication of the types of constructs that decision makers in the home building industry use to construe participation in a voluntary environmental program.

2. To assess the supplied elements.

In terms of the supplied elements, both interviewees found them to be comprehensive and representative. No further elements were generated during the pilot interviews.

3. To determine a typical number of elicited constructs for the interviews.

Nine constructs were elicited during each pilot interview for a total of 18 constructs. Based on these results, it is anticipated that 8 to 10 constructs are attainable in future interviews. The number of constructs elicited during the pilot interviews would indicate that around 30 RGT interviews would be required in the main study to attain the 250 to 300 constructs necessary for a content analysis.

4. To gain proficiency with the RGT.

The pilot study provided the opportunity to practice and improve the data collection procedures of the RGT that will be used in the main study including the opportunity to practice the elicitation of constructs and laddering down interview techniques. The pilot interviews were approximately one hour in duration.

5. To practice content analysis with its associated reliability check/improvement procedures.

The pilot study also provided for practice of the data analysis procedures of the RGT including content analysis and its associated reliability check/improvement procedures. The recommended reliability value for the content analysis procedure was shown to be feasible.

As the pilot study is based on only two RGT interviews, the results are not necessarily indicative, but they are illustrative of the types of results and thinking by decision makers that one might expect from the main study. The pilot study has been successful in achieving its objectives of testing and refining the data collection and analysis techniques, specifically the use of the RGT and content analysis.

3.3.5 Pilot Study Outcomes and Implications

In addition to the pilot study's stated objectives of testing and refining the data collection and analysis techniques, the pilot study exercise generated additional outcomes and implications in terms of the approach taken in the main study.

The pilot study interviews revealed that home builders are busy people who place a premium on time. In that sense, it was found that interviews that are one hour in duration are about the maximum amount of time that participants in this industry are willing to volunteer for a study. With the pilot RGT interviews each taking approximately one hour to complete and recognizing the time constraint of home builders, the main study interviews were scheduled for one hour appointments.

It was also found in the pilot interviews that adding the additional step of assessing personal values would not be possible in the one hour time frame participants were willing to provide. In addition, the pilot interviewees were not overly receptive to conducting a prioritised values elicitation (laddering up technique). This mirrors Lindebaum's and Cassell's (2012) findings that 'softer' or personal items are seen as difficult to talk about leading to an avoidance of emotion and reflection in the male dominated construction industry. Due to interview time constraints and the limited receptiveness of the interviewees to discuss personal values, the prioritised values elicitation (laddering up technique) was not included in the main study.

In addition, the pilot interviews also revealed that having the interviews take place in an environment free of interruptions including mobile and computing devices is also important to prevent distractions. The main study interviews were requested to take

place in an office or boardroom, and interviewees were politely requested to turn off electronic devices.

The pilot study also afforded the opportunity to test the placement of the supplied overall construct. The supplied overall construct, ‘Important to my decision to participate – Less important to my decision to participate’, was utilized in one pilot RGT interview as the last construct and in the other pilot RGT interview as the first construct. Having the overall supplied construct as the last question was deemed advantageous. It provided a better flow to the interview, and it provided a logical concluding question to finish the interview. In addition, it allowed the interviewee to commence the RGT interview with an elicited construct of their own construal as opposed to framing their thinking initially with a supplied construct.

Finally, the content analysis categories generated from the pilot study interviews left an impression that generalizations would be possible based on the kinds of construct categories obtained and their ability to address the research questions in the main study.

3.4 Chapter Summary

This chapter detailed the research paradigm and research methodology. It provided a rationale and justification for each in light of the research questions. Details of the pilot study, which helped refine the approach, have also been included in this chapter. Detailed results of the pilot study can be found in the Appendices (E to H). Documents related to ethical conduct are in Appendix C and D, and letters of participation support for the main study are in Appendix I and J. The pilot study provided an indicative look at the potential types of constructs that will be identified in the main study. The main study is detailed in Chapters 4 and 5.

CHAPTER 4 FINDINGS AND ANALYSIS

4.1 Introduction

This chapter details the results from 32 interviews conducted with builder members of the Built Green Canada program in the Alberta residential home construction industry. The focus of this chapter is to present the findings and detail the analysis that was undertaken to address the research questions. This chapter includes details of an emergent finding as well as the reporting of results from the repertory grid interviews including a content analysis and an element analysis of the supplied construct. The next chapter, Chapter 5, will discuss these findings in greater detail, including references to the literature and research questions.

4.2 Emergent Finding and Aim

This chapter details the results of 32 interviews conducted over a 6 week period with decision makers at home building firms who were builder members in the Built Green Canada program (a voluntary environmental program). The interviews generated a total of 297 constructs. One construct was supplied in each interview (the overall supplied construct as per Honey's (1979) technique), resulting in 265 elicited constructs.

4.2.1 Emergent Finding

An emergent finding from the interviews related to the level of home builder involvement or participation in the Built Green Canada program. As previously mentioned, all firms were builder members of the Built Green Canada program. However, as participation in the program is voluntary, a builder can choose which homes they construct to register in the Built Green Canada certification process. In other words, a builder can be a member of Built Green Canada and not actually construct any Built Green Canada certified homes. As a result, during the interviews

data was collected on the total number of homes built annually as well as the number of homes that each builder certified through the program each year.

Analysis of the interview data revealed two emerging groups. The first group were builders who built all or a majority of their homes through the Built Green Canada program. The second group were builders who, while members of the program, chose to build few if any certified homes. The first group was labelled 'Active' participants in the program, and the second group was labelled 'Passive' participants in the program. A review of the literature revealed that there is no clear and consistent definition of what constitutes an 'active' versus a 'passive' member of a program, but it has been portrayed as more of a continuum of involvement (Morris and Pottert, 1995). For this study, the continuum used to determine 'active' or 'passive' status was based on a clear break in the annual percentage of new homes built that were certified with Built Green Canada. The 16 active participants built 60 per cent or more of their homes through the program. In fact, all but three of the active participants built all (100 percent) of their homes with Built Green Canada certification. The remaining 16 passive participants built 21 percent or fewer of their homes through the program with all but 2 building less than 5 percent. This break in the data (between a builder with 21 percent of new homes certified and a builder with 60 percent) was the largest break in the percentage list, and it was used as the threshold for determining the active and passive program participation in this study. Appendix K provides a summary of the data on the annual percentage of new homes built that were certified with Built Green Canada by the participants to determine active or passive status.

This emergent finding of active and passive program participants is significant as it will provide the opportunity to do a comparative case study analysis within the context of the broader study. A comparative analysis can provide for deeper understanding than a single case study approach (Patton, 2002). In other words, a comparison of active and passive program participants provides an opportunity to provide clearer results as a contrast of cases and constructs can bring issues into focus. As detailed in Chapter 3, an overall comparative case study approach was considered that would compare construing in firms with membership in the Built Green Canada program with non-members, but a

literal replication technique of only program members was chosen due to accessibility issues with non-members of the program. This emergent finding of active and passive participants will allow for a comparison of differences in construing between members of the program who build most (if not all) of their homes as Built Green Canada certified homes with members of the program who build few (if any) certified homes. In other words, it will provide for a comparison of Built Green Canada builder members who take advantage of the certification program and those who do not.

The Nine Passive Non-Participants in the Construction of Certified Homes

It has been noted that within the 16 passive participants, there were 9 participants who built no certified homes although they were members of the program in good standing (see Appendix K). While this sub-group of passive builders were in effect non-participants in the construction of Built Green Canada certified homes, the interviews revealed that they did make use of the program for educational and/or marketing purposes. Subsequent analysis of these 9 non-participants in the construction of certified homes generally revealed similar results to the overall passive group. In some cases, due to the smaller size of this subgroup, statistical analysis tools were not possible to use because of the small number of construct counts (i.e. category count < 5). As a result, the main analysis of this emergent finding focused on the previously defined larger group of 16 passive participants.

4.2.2 Aim

As the aim of the study is to understand the decision to take part in the Built Green Canada program, the data from all 32 interviews will be analyzed in its entirety. The repertory grid interviews were analyzed to gain an understanding of how home builders think and attribute meaning to their decision to participate in a voluntary environmental program. Based on the emergent findings of active and passive participants, a comparative analysis of these two participant groups has also been undertaken to see if there are any differences between the active and passive participants in how they construe the various drivers/pressures to participate. Results from the content analysis

of the constructs from the repertory grid interviews have maintained the exact wording elicited during the interviews from the participants. Keeping the participants own words is designed to help depict their personal meaning (e.g. how they make sense).

This study is also designed to assess the relative level of importance that home builders attribute to the drivers/pressures to participate. This includes an element analysis of the supplied overall construct to assess the importance of the drivers/pressures or main motivators for participation identified in the literature and based on practitioner experience for the home building industry. This analysis has been undertaken on all 32 interviews in their entirety as well as comparatively between the active and passive participants.

4.3 Aggregate analysis

This section comprises an aggregate grid data analysis of the 32 RGT interviews. The data has been analyzed following prescribed methodologies (Honey, 1979; Jankowicz, 2004) for aggregate grid (cross-case) analysis as detailed in Chapter 3. These techniques, as opposed to Wright's 2004 'collective super grid', have been used to aggregate the meaning present in the whole sample in order to preserve the information about each individual's view in terms of how they personally think about the topic in alignment with Kelly's (1955) view of constructive alternativism (Jankowicz, 2004).

4.3.1 Content Analysis of Main Study (Honey's technique)

A content analysis was performed on all 32 interviews to look at comparisons between grids (aggregate grid analysis). The content analysis techniques used to analyze the RGT interview grids comprised both Honey's (1979) Content Analysis procedures and Bootstrapping Techniques as detailed by Jankowicz (2004).

In summary, Honey's (1979) technique provides for a content analysis of multiple grids based on the relative importance of constructs by utilizing a supplied construct that was common to all of the grid interviews (see Chapter 3). In this study the supplied construct is 'Important to my decision to participate – Less important to my decision to

participate'. Not only does this supplied construct provide an overall summary of the interviewee's views of each element, it also provides the ability to assess the level that ratings on the elicited constructs match the ratings on the overall supplied construct. Percent similarity scores were calculated for each elicited construct with respect to the overall supplied construct, and each interviewee's personal metric was taken into account by dividing up their constructs into thirds (assigned H-I-L values).

The labelled and scored constructs were then categorized for analysis using the Bootstrapping Technique (Jankowicz, 2004). A Core-Categorization Procedure was employed (Jankowicz, 2004: 149) instead of a standard or theory based categorization scheme in order to leave the analysis more open. The reliability of the Core-Categorization Procedure has been assessed to ensure that the category system makes sense. Reliability was determined by having another researcher (collaborator) complete the procedures (two iterations) to identify the level of agreement and disagreement between the two categorizations via a reliability table. For details on the inter-rater reliability assessments see Appendix L for the first attempt and Appendix M for the second attempt.

The first attempt (prior to any discussion of categories or themes with the collaborator) resulted in a percent agreement score of 69.1 percent with inter-rater reliability scores of 0.58 for Cohen's Kappa and 0.73 for the Perreault-Leigh Index (Perreault-Leigh Index 95% Confidence Interval of 0.66 to 0.79). After a discussion of definitions and negotiation of meaning with the collaborator, a second attempt resulted in a percent agreement score of 96.2 percent with inter-rater reliability scores of 0.96 for Cohen's Kappa and 0.94 for the Perreault-Leigh Index (Perreault-Leigh Index 95% Confidence Interval of 0.92 to 0.97). These results exceeded the benchmarks for both percent agreement and inter-rater reliability scores (Jankowicz, 2004: 161-163; Perreault and Leigh, 1989: 147). In other words, the final results of the categorization are reliable.

For the final categorization of the data used in the subsequent analysis, the 'Interviewer' categorization has been used. The interviewer's final content analysis was chosen as

this is the typical procedure (Jankowicz, 2004: 163) as the interviewer designed the study and had more familiarity with the constructs.

Table 4.1 below summarizes the categorization of the data. A full listing of the categories and their associated constructs can be found in Appendix N (Content Analysis Table).

Category	Definition	Number of Constructs	Percent Number of Constructs	Average Percent Similarity Score	Percent of Scores with H
Innovation/industry leadership	Leader in the industry; innovator; proactive <i>versus</i> status quo; minimum code; follower; reactive	27	10.2%	48.1%	33.3%
Marketing and Sales	Marketing and sales tool; promotion tool; selling the home <i>versus</i> administrative and operational aspects; construction of the home; technical aspects	27	10.2%	44.1%	33.3%
Differentiation/competitive advantage	Differentiates the firm; unique niche; competitive advantage; custom built <i>versus</i> production or volume builder; mainstream or standard home	25	9.4%	46.2%	36.0%
Management/Decision making issues	Objectives, direction or tasks; improvements; relationships <i>versus</i> results; requirements; processes	25	9.4%	37.0%	36.0%
Customer engagement	Customer focus; customer perception; customer decision <i>versus</i> firm interests; industry or government focus; production or behind the scenes	24	9.1%	39.4%	33.3%
Legitimacy/authenticity/integrity	Belief in values; right thing to do; do what you say you, verification of performance/quality <i>versus</i> good enough; unproven claims; more about money than product	24	9.1%	49.8%	41.7%
Communication/Education	Educating and informing; two way flow of information; explaining <i>versus</i> one way flow of information; directing; no awareness	22	8.3%	38.6%	31.8%
Control (internal/external)	Internal to firm; can control <i>versus</i> external to the firm; no control over	20	7.5%	31.3%	20.0%
Identity and image	Corporate image or identity; public perception; professional builder image <i>versus</i> reality; who we really are; non-professional image	19	7.2%	42.9%	42.1%
Product quality/energy efficiency	Better home; built right; better energy efficiency; quality control <i>versus</i> minimum code built home; looks good but doesn't perform	17	6.4%	41.5%	35.3%
Environmental impact	Real environmental focus or benefits <i>versus</i> greenwash; just making money	10	3.8%	39.0%	50.0%
Profit (cost/revenue drivers)	Expenses; costs; efficiencies <i>versus</i> revenue; cost recovery; processes	10	3.8%	42.5%	40.0%
Time horizon (short vs. long)	Short term; immediate; day to day <i>versus</i> longer term; 2+ years in the future	8	3.0%	47.5%	25.0%
Company View	Company view; helps us <i>versus</i> outward view; helps industry	6	2.3%	37.5%	16.7%
Miscellaneous	Other	1	0.4%	75.0%	100.0%
Total		265	100.0%	42.3%	34.7%

Based on the categorization, 14 categories or themes were identified. The following is a summary of the themes and their characteristics:

Innovation/industry leadership

The constructs in this theme related to the idea of being a leading firm in the industry in terms of environmental responsibility and trying new technologies or building techniques (innovative). This was contrasted with being more of a status quo builder or just following the building code. The notion of being proactive as opposed to being

reactive was also prevalent in the constructs. This theme was tied for the most number of constructs and it scored second highest on its average percent similarity score. This indicates it was shared by many home builders and it was important to them.

Marketing and Sales

The marketing and sales theme was also tied for the most number of constructs and it scored above the overall average on its percent similarity score (indicating prevalence and importance). This theme was focused on construing the program as a sales and marketing tool in terms of driving customer demand and convincing customers. It was contrasted with more operational aspects of running the business and technical aspect of building the home.

Differentiation/competitive advantage

The differentiation/competitive advantage theme related to viewing membership in the built Green Canada program as way for homebuilders to set their company apart from the competition. It included ideas about serving a niche market and providing customers with more custom built homes. It was contrasted with building homes for the broad market (generally referred to as production or volume home building). This theme was the second most prevalent and scored higher than the overall average for both average percent similarity score and number of high or H scores in its H-I-L values (indicating widely shared and important).

Management/Decision making issues

Constructs provided in the management/decision making issues theme were focused on construing the program as a management or decision making tool. This was contrasted with more process related elements required of all home builders or outputs of the process. This theme was tied as the second most common theme, but it scored below the overall average with its percent similarity score. Although widely shared it would be considered less important than the prior differentiation/competitive advantage theme.

Customer engagement

The idea of seeing Built Green Canada as a way to engage customers was the third most common theme. Constructs in this theme were focused on the customer, dealing with customer perceptions and/or customer purchase decision making. It was contrasted with ideas related to firm, government or industry interests and production elements of home construction. This theme was tied as the third most common theme, but it scored below the overall average with its percent similarity score.

Legitimacy/authenticity/integrity

The legitimacy/authenticity/integrity theme was the highest scoring theme in terms of average percent similarity score. It also scored above average in terms of the number of high H-I-L values. This indicates that the ideas related to belief in values, doing the right thing, being true to one's word, and verifying product environmental performance are an important aspect of how the decision to join the Built Green Canada program is construed. Contrasts included ideas related to just being good enough or being more concerned with money than a good product. This theme was tied as the third most common theme.

Communication/Education

Constructs provided in the communication/education theme were focused on informing, explaining, and two-way flows of information in contrast with one-way flows, directing or lack of awareness. With 22 constructs, this was the fourth most common theme (midway point in terms of prevalence). It scored below the overall averages for both its percent similarity score and average number of high H-I-L values.

Control (internal/external)

The control (internal/external) theme had the lowest average percent similarity score and second lowest number of high H-I-L values. This indicates a low level of

importance. This theme was described by interviewees as contrasts between internal elements of the company over which the decision maker had control as opposed to external forces that were beyond their control. It was the fifth most common theme just below the mid-point.

Identity and image

This theme was seen as important by interviewees as it scored above the overall average for its percent similarity score and placed second for the highest average number of high H-I-L values. With 19 constructs, it was the sixth most common. This theme related to construing the decision to participate in relation to corporate image and being viewed as a professional builder.

Product quality/energy efficiency

The idea of building a better built home or more energy efficient home as opposed to a minimally performing home was shared by about half of the interviewees. It scored above the overall average for its percent similarity score and slightly above average for the number of high H-I-L values (indicating some importance).

Environmental impact

While this theme had only 10 constructs, half of the H-I-L values were high making this the highest scoring theme in that respect. This indicates the construal of seeing participation in Built Green Canada as a real environmental focus as opposed to a greenwash is important among those with this view.

Profit (cost/revenue drivers)

The idea of viewing the program in terms of cost and efficiencies as opposed to revenue or cost-recovery was the third least common theme. In addition to being a theme that

was not widely shared, it scored at about the overall averages for both its percent similarity score and average number of high H-I-L values.

Time horizon (short vs. long)

The idea of viewing the program as an immediate or day to day concern as opposed to a longer term item was the second least common theme with only eight constructs. It scored above the overall average for its percent similarity score but below the overall average for the number of high H-I-L values.

Company View

Apart from the miscellaneous category, the theme of company view had the lowest number of constructs (not widely shared), and it scored below the overall averages for both its percent similarity score and had the lowest score for its average number of high H-I-L values (less important).

In summary, the themes with the most constructs were Innovation/industry leadership and Marketing and Sales. The category with the highest average percent similarity (percent matching) score was Legitimacy/authenticity/integrity while the Environmental impact theme scored the highest percentage of High H-I-L values. In general, the themes that were shared by many decision makers (frequency of constructs) related to Innovation/industry leadership, Marketing and Sales, Differentiation/competitive advantage, Management/Decision making issues, Customer engagement, and Legitimacy/authenticity/integrity. The themes of Environmental impact, Profit (cost/revenue drivers), Time horizon (short vs. long), and Company View were less prevalent. In terms of themes that were important to the interviewees (higher percentage of high H-I-L scores), Environmental impact, Profit (cost/revenue drivers), and Legitimacy/authenticity/integrity scored higher. The themes with lower personal importance were Time horizon (short vs. long) and Company View.

4.3.2 Content Analysis of Active and Passive (Honey's technique)

With the emergent finding of active and passive participants (in the Built Green Canada program) from the interview data, a comparative analysis of the constructs was also performed. In doing a comparative analysis of active versus passive participants, the data from the previously described core-categorization procedure was sorted based on the interviewees' status as an active builder or passive builder in the program. In total the 16 active participants had 140 constructs (or 53 percent of the total of all the interview constructs) while passive participants had 125 constructs (or 47 percent of the total). A Chi-square test of independence performed on the entire data set revealed that active and passive status were independent of each other (p-value = 0.78 at 14 degrees of freedom). With confirmation of independence of the two subgroups, hypothesis tests on the difference between proportions between active and passive participants were conducted for each of the construct themes or categories. Table 4.2 below highlights the categorization of the constructs as well as the hypothesis test results to determine if there was a significant difference between active and passive participant construct categorization.

Category	Number of Constructs Active	Percent of Active	Number of Constructs Passive	Percent of Passive	z	p-value
Innovation/industry leadership	17	12.1%	10	8.0%	1.11	0.133
Marketing and Sales	13	9.3%	14	11.2%	-0.51	0.304
Differentiation/competitive advantage	13	9.3%	12	9.6%	-0.09	0.465
Management/Decision making issues	17	12.1%	8	6.4%	1.60	0.055
Customer engagement	9	6.4%	15	12.0%	-1.58	0.057
Legitimacy/authenticity/integrity	13	9.3%	11	8.8%	0.14	0.445
Communication/Education	11	7.9%	11	8.8%	-0.28	0.391
Control (internal/external)	9	6.4%	11	8.8%	-0.73	0.233
Identity and image	8	5.7%	11	8.8%	-0.97	0.166
Product quality/energy efficiency	8	5.7%	9	7.2%	-0.49	0.311
Environmental impact	7	5.0%	3	2.4%	sample size too small (category count < 5)	
Profit (cost/revenue drivers)	6	4.3%	4	3.2%		
Time horizon (short vs. long)	5	3.6%	3	2.4%		
Company View	3	2.1%	3	2.4%		
Miscellaneous	1	0.7%	0	0.0%		
Total	140	100%	125	100.0%		

Hypothesis Test
 $H_0: P_1 = P_2$
 $H_a: P_1 \neq P_2$

While the majority of themes are not significantly different between the two groups, two of them, Management Decision making issues ($z = 1.60$, $p(z) = 0.055$) and Customer engagement ($z = -1.58$, $p(z) = 0.057$) between active and passive participants may well be different in the population being studied. The data suggests that active participants are more likely to view the Built Green Canada program as a management/decision making tool than passive participants. While passive participants are more likely to view the program as a customer engagement tool than active participants.

Table 4.3 below provides additional information on the comparison of active and passive participants in terms of their construct categorization, their percent similarity scores and the percentage of H scores for H-I-L values.

Category	Active				Passive				Difference in H Scores (Active-Passive)
	Number of Constructs	Percent Number of Constructs	Average Percent Similarity Score	Percent of Scores with H	Number of Constructs	Percent Number of Constructs	Average Percent Similarity Score	Percent of Scores with H	
Innovation/industry leadership	17	12.1%	51.8%	41.2%	10	8.0%	42.0%	20.0%	21.2%
Marketing and Sales	13	9.3%	43.8%	30.8%	14	11.2%	44.3%	35.7%	-4.9%
Differentiation/competitive advantage	13	9.3%	48.5%	38.5%	12	9.6%	43.8%	33.3%	5.1%
Management/Decision making issues	17	12.1%	34.1%	23.5%	8	6.4%	43.1%	62.5%	-39.0%
Customer engagement	9	6.4%	38.9%	22.2%	15	12.0%	39.7%	40.0%	-17.8%
Legitimacy/authenticity/integrity	13	9.3%	50.4%	30.8%	11	8.8%	49.1%	54.5%	-23.8%
Communication/Education	11	7.9%	38.2%	18.2%	11	8.8%	39.1%	45.5%	-27.3%
Control (internal/external)	9	6.4%	31.1%	11.1%	11	8.8%	31.4%	27.3%	-16.2%
Identity and image	8	5.7%	53.1%	62.5%	11	8.8%	35.5%	27.3%	35.2%
Product quality/energy efficiency	8	5.7%	47.5%	50.0%	9	7.2%	36.1%	22.2%	27.8%
Environmental impact	7	5.0%	40.7%	57.1%	3	2.4%	35.0%	33.3%	23.8%
Profit (cost/revenue drivers)	6	4.3%	40.8%	33.3%	4	3.2%	45.0%	50.0%	-16.7%
Time horizon (short vs. long)	5	3.6%	45.0%	20.0%	3	2.4%	51.7%	33.3%	-13.3%
Company View	3	2.1%	50.0%	33.3%	3	2.4%	25.0%	0.0%	33.3%
Miscellaneous	1	0.7%	75.0%	100.0%		0.0%	0.0%	0.0%	100.0%
Total	140	100.0%		33.6%	125	100.0%		36.0%	

In order to determine if the differences in the H scores between active and passive participants were significant, hypothesis tests on the difference between proportions between active and passive participants was performed. First a Chi-square test of independence performed on the Percent of Scores with H (H-I-L values) for the entire data set revealed that active and passive status were independent of each other for this variable (p -value = 0.99 at 14 degrees of freedom). With confirmation of independence of the two subgroups, hypothesis tests on the difference between proportions between active and passive participants for their Percent of Scores with H were conducted for each of the construct themes or categories. Table 4.4 below provides additional information on the difference between proportions for active and passive participants in terms of their percentage of H scores for H-I-L values.

Category	Active		Passive		Difference in H Scores (Active-Passive)	z	p-value
	Number of Constructs	Percent of Scores with H	Number of Constructs	Percent of Scores with H			
Innovation/industry leadership	17	41.2%	10	20.0%	21.2%	1.13	0.130
Marketing and Sales	13	30.8%	14	35.7%	-4.9%	-0.27	0.393
Differentiation/competitive advantage	13	38.5%	12	33.3%	5.1%	0.27	0.395
Management/Decision making issues	17	23.5%	8	62.5%	-39.0%	-1.89	0.029
Customer engagement	9	22.2%	15	40.0%	-17.8%	-0.89	0.186
Legitimacy/authenticity/integrity	13	30.8%	11	54.5%	-23.8%	-1.18	0.120
Communication/Education	11	18.2%	11	45.5%	-27.3%	-1.37	0.085
Control (internal/external)	9	11.1%	11	27.3%	-16.2%	-0.90	0.184
Identity and image	8	62.5%	11	27.3%	35.2%	1.54	0.062
Product quality/energy efficiency	8	50.0%	9	22.2%	27.8%	1.20	0.116
Environmental impact	7	57.1%	3	33.3%	23.8%		
Profit (cost/revenue drivers)	6	33.3%	4	50.0%	-16.7%		
Time horizon (short vs. long)	5	20.0%	3	33.3%	-13.3%		
Company View	3	33.3%	3	0.0%	33.3%		
Miscellaneous	1	100.0%	0	0.0%	100.0%		
Total	140	33.6%	125	36.0%			

Hypothesis Test
 $H_0: P_1 = P_2$
 $H_a: P_1 \neq P_2$

While the majority of themes are not significantly different in terms of the differences in H scores between the two groups, two of them, Management Decision making issues ($z = -1.89$, $p(z) = 0.029$) and Identity and image ($z = 1.54$, $p(z) = 0.062$) between active and passive participants may well be different in the population being studied. The data suggests that active participants place more importance on identity and image conferred through involvement in the Built Green Canada program than passive participants. While passive participants place more importance on management decision making aspects of the program than active participants.

Frequent and Personally Important Themes for Active Participants

The themes with the most constructs for active participants were Innovation/industry leadership and Management/Decision making issues. The constructs in the Innovation/industry leadership theme focused on active participants seeing themselves as being a leading firm in the industry in terms of environmental responsibility, being proactive, and more inclined to try new technologies or building techniques. Some constructs even included the idea of making the whole industry better by raising the overall level of environmental performance. The Management/Decision making issues theme involved active participants construing the program as a management or decision making tool. As previously mentioned, the Management/Decision making issues theme

was of interest in terms of being appreciably different (higher or more frequent) for active participants than for passive participants. Although being more frequent for active participants, this theme was not as important to them as compared to passive participants based on the percentage of H scores for H-I-L values.

Further with respect to importance for active participants, the category with the highest average percent similarity (percent matching) score was Identity and image. This category also had the highest percentage of High H-I-L values, and this theme was found to be significantly higher for active participants than passive participants. For active participants, constructs of being seen as doing the right thing or being socially responsible were prominent both in terms of company identity and for recognition.

There were also differences between active and passive participants on themes that were important (larger differences in H-I-L scores with H). Active participants placed more importance on themes of Innovation/industry leadership, Identity and image, Product quality/energy efficiency, Environmental impact, and Company View than did passive participants. However, only the Identity and image theme was found to be significantly higher.

Frequent and Personally Important Themes for Passive Participants

For passive participants the theme with the most constructs was Customer engagement followed closely by Marketing and Sales. For passive participants constructs related to the Customer engagement theme were focused on the customer, dealing with customer perceptions and/or customer purchase decision making. This paralleled the passive participants' thinking in the Marketing and Sales theme where construal of the program was related to seeing it as a sales and marketing tool in terms of driving customer demand and convincing customers. As previously discussed, the Customer engagement theme was of interest in terms of being significantly different (higher or more frequent) for passive participants than for active participants.

With respect to importance for passive participants, the category with the highest average percent similarity (percent matching) score was Time horizon (short versus long) while the Management/decision making issues category had the highest percentage of High H-I-L values. In terms of differences between passive and active participants on themes that were important (larger differences in H-I-L scores with H), passive participants placed more importance on themes of Management/Decision making issues, Customer engagement, Legitimacy/authenticity/integrity, and Communication/Education. It was determined that only the Management/Decision making issues theme was significantly higher for passive participants than active participants.

4.4 Element analysis

The previous section identified the ways in which participants construe the drivers and pressures to join a voluntary environmental program. This research is also intended to pay particular attention to the construal of the drivers/pressures which the literature suggests in general are important in voluntary environmental program participation in order to assess their importance specifically to the home building industry (see research question 2). As a result, this section assesses the relative level of importance that home builders attribute to the drivers/pressures to participate.

4.4.1 Element analysis on the supplied overall construct

During the RGT interview, all interviewees had been presented with an overall supplied construct (Overall, important to my decision to participate - Overall, less important to my decision to participate) – as explained in section 3.2.3, firstly in order to assess the personal importance of the constructs by means of Honey's (1979) technique, (giving the results as presented in section 4.3 above); and secondly, in order to assess the overall importance of the drivers/pressures.

The interviewees had rated each of the 10 supplied elements on this overall supplied construct using a 5 point scale with a score of 1 representing the 'important to my

decision to participate’ end of the spectrum and a score of 5 being the ‘less important to my decision to participate’ end of the spectrum, giving the results as follows.

As this data is ordinal in nature, the most appropriate measure of central tendency and variance are median and percentiles (Stevens, 1946). Table 4.5 below highlights the results.

Table 4.5 - Summary of Ratings on the Overall Supplied Construct (Importance to Decision to Participate)											
		Element									
	Rating	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
Rating (frequency count)	1	7	2	9	13	0	14	0	9	12	12
	2	6	1	11	13	1	9	5	13	10	10
	3	5	3	5	4	5	7	5	7	6	7
	4	5	11	3	1	8	1	6	2	2	2
	5	9	15	4	1	18	1	16	1	2	1
Median		3	4	2	2	5	2	4.5	2	2	2
Percentile	25	2	4	1	1	4	1	3	1	1	1
	75	5	5	3	2	5	3	5	3	3	3

Elements that scored relatively high in importance (1 and 2 ratings) were E3 - Handling competition, E4 - Appealing to customers, E6 - Acquiring technical knowledge, E8 - Obtaining publicity, E9 - Building corporate culture/identity, and E10 - Obtaining third party certification. These elements had median scores of 2 with 75th percentile scores of 3 or lower (in other words, very few less important ratings).

Elements that scored relatively low in importance (4 and 5 ratings) were E2 – Creating cost efficiencies for your organization, E5 - Responding to suppliers/trades, and E7 - Accessing Government/CMHC Incentives. These elements had median scores of 4 or higher with 25th percentile scores of 3 or higher (in other words, very few more important ratings).

Element E1 - Pre-empting/influencing government legislation (e.g. building code changes) was the only element to score a fairly equal distribution of rating scores.

Appendix O provides a graphical overview summarizing the ratings for both high importance (1 and 2 ratings) and low in importance (4 and 5 ratings).

Table 4.6 below lists the elements in terms of importance and provides details on whether the element is more internally (company focused) or externally (market) focused.

Element*	Element Description	Median Score	Level of Importance	Internal or External Focus
E4	Appealing to customers	2	More	External
E3	Handling competition	2	More	External
E6	Acquiring technical knowledge	2	More	Internal
E8	Obtaining publicity	2	More	External
E9	Building corporate culture/identity	2	More	Internal
E10	Obtaining third party certification	2	More	External
E1	Pre-empting/ influencing government legislation (e.g. building code changes)	3	Middle	External
E2	Creating cost efficiencies for your organization	4	Less	Internal
E7	Accessing Government/CMHC Incentives	4.5	Less	Internal
E5	Responding to suppliers/trades	5	Less	Internal

* listed in order of importance based on median score

Overall then, handling competition, appealing to customers, acquiring technical knowledge, obtaining publicity, building corporate culture/identity, and obtaining third party certifications were important drivers/pressures to home builders to participate in the Built Green Canada program. In contrast, creating cost efficiencies, accessing government incentives and responding to trades/suppliers were of low importance. All of the less important drivers/pressures were more internally or company focused while any externally or market focused drivers were seen as having higher importance. The highest scoring element overall, in terms of median and percentile, was appealing to customers, an externally focused element. Elements scoring low in importance also had cost/revenue implications (e.g. cost efficiencies, trades and suppliers, and incentives).

4.4.2 Element analysis of the supplied overall construct for the emergent active versus passive participants

As previously described, the content analysis of the interview data revealed two emergent groups (active participants in the program and passive participants in the program). A Mann-Whitney U test was performed to determine if there was a

significant difference in how active and passive participants rated the various driver/pressure elements in terms of their relative importance to their decision to participate in the program. The Mann-Whitney U test is a nonparametric test to determine if the medians and distributions are different for two groups (different participants) where test scores are measured as ordinal data (Hart, 2001; Swinscow and Campbell, 2002; Green and D'Oliveira, 2005). Table 4.7 below highlights the results.

	Element									
	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
Mann-Whitney U	125.5	77	113	116.5	100.5	96.5	92.5	119	73	73
Z	-0.096	-2.077	-0.586	-0.466	-1.156	-1.262	-1.441	-0.357	-2.172	-2.177
P-Value (2-tailed)	0.923	0.038	0.558	0.641	0.248	0.207	0.149	0.721	0.03	0.03

where n1 = 16 and n2 = 16

At the 5 percent level of significance, the null hypothesis (there is no difference between the scores of active and passive participants) was rejected for three of the elements. These elements were E2 - Creating cost efficiencies for your organization, E9 - Building corporate culture/identity, and E10 - Obtaining third party certification. In other words, active and passive participants rate the level of importance of these three drivers/pressure to participate in the Built Green Canada program differently. For the remaining elements (E1, E3, E4, E5, E6, E7, and E8), the Mann-Whitney U test revealed that there was no significant difference between the scores of the active and passive participants.

Table 4.8 below highlights the median ratings between active and passive participants for the drivers/pressures tested.

	Element										
	E1	E2*	E3	E4	E5	E6	E7	E8	E9*	E10*	
Active Median Rating	3	4	2	2	4	2	5	2	1	1.5	
Passive Median Rating	3.5	5	2	1.5	5	1	4	2	2	2.5	

* difference is significant at $\alpha = 0.05$

For the drivers/pressures E2 - Creating cost efficiencies for your organization, E9 - Building corporate culture/identity, and E10 - Obtaining third party certification active

participants indicated a greater level of importance for these elements than for passive participants. In addition, the relatively lower active median scores (indicating greater importance) for these three elements were statistically significant. In other words, if one wants to understand which drivers/pressures influence the active participants more (as opposed to passive participants), they are the creation of cost efficiencies, building corporate culture/identity, and obtaining third party certification of their homes.

4.5 Chapter Summary

This chapter provided an overview of the main findings of the of the repertory grid interviews including a content analysis and an element analysis of the supplied construct. Emergent findings between active and passive participants were noted. The results of these findings will be examined and evaluated in greater detail, including references to the literature and research questions, in the following chapter.

CHAPTER 5 DISCUSSION AND INTERPRETATIONS

5.1 Introduction

The previous chapter detailed the main findings from the 32 repertory grid interviews of Built Green Canada builder members in the Alberta home building industry. Results from the content analysis and an element analysis of the supplied construct were provided. Emergent findings between active and passive participants were also detailed. The results of these findings will be examined and evaluated in greater detail in this chapter in order to address the aim of this research and to provide answers to the research questions. In addition, in light of the emergent finding of active and passive participants outlined in Chapter 4, the very nature of participation in the program needs to be discussed and reinterpreted.

5.2 Empirical Outcomes: Construal of Drivers/Pressures

In order to make sense of a decision maker's choice to join a voluntary environmental program, an understanding of how decision makers view the various drivers/pressures to join is required. As presented in the Research Methodology (Chapter 3), the repertory grid technique provides for the identification of decision makers personal constructs on the issue. The RGT also has the advantages of capturing the interviewee's perceptions in their own words, and it is a technique that reduces social desirability bias (Jankowicz, 2004). The RGT also incorporates elements of qualitative content analysis with quantitative statistical testing to provide multiple views of the data in examining and evaluating the research questions.

As detailed in Chapter 4, the results from 32 interviews with builder members of the Built Green Canada program in the Alberta residential construction industry yielded 265 elicited constructs. Based on a content analysis and categorization of the constructs (see Appendix N for the categorized listing of the constructs), the construal of the decision to

participate was found to incorporate 14 identified themes. Table 5.1 below lists these themes as well as the percentage of constructs that each theme contained.

Table 5.1 - Construct Theme Summary		
Number	Theme	Percentage of All Constructs
1	Innovation/industry leadership	10.2%
2	Marketing and Sales	10.2%
3	Differentiation/competitive advantage	9.4%
4	Management/Decision making issues	9.4%
5	Customer engagement	9.1%
6	Legitimacy/authenticity/integrity	9.1%
7	Communication/Education	8.3%
8	Control (internal/external)	7.5%
9	Identity and image	7.2%
10	Product quality/energy efficiency	6.4%
11	Environmental impact	3.8%
12	Profit (cost/revenue drivers)	3.8%
13	Time horizon (short vs. long)	3.0%
14	Company View	2.3%

5.2.1 Discussion of the Construct Themes

In identifying these themes and discussing them in light of the current literature, it should be noted that this study's approach of examining the sensemaking (Weick, 1995) of home builders who made the decision to participate in a voluntary environmental program using Kelly's PCT theory (Kelly, 1955 and 1963) is a relatively novel approach to studying this issue. The predominant themes in the current literature are to study the notion of going green from a competitiveness aspect or to study the motivations behind going green. As this study is looking at the construal of the drivers/pressures to go green, comparisons to the extant literature for the categorization of the elicited constructs are not quite a direct comparison, but rather inferences will be

drawn to show areas of alignment and disagreement. The subsequent element analysis of the decision to participate is more in line with previous studies and allows for more direct comparisons between studies.

The following is a discussion of the themes categorized from the construal of the decision to participate.

Innovation/industry leadership

The idea of being a proactive, innovative, and a leading firm in the industry was the most widely shared theme in the interviews. High percent similarity scores and a large number of high scores for the H-I-L values also reinforce that this theme was an important way of construing the decision to participate. The theme of innovation/industry leadership mirrors findings by Sharma and Vredenburg (1998) who identified first mover status and innovation as an organizational capability tied to proactive firms. The construal of the decision to participate as being viewed as innovative or leading the industry, also aligns with Chen's (2008) findings on 'green product innovation' and 'green process innovation' that had links to a firm's 'green core competences'. There is also a link to Hart's (1995) natural resource based view of the firm in that being proactive and innovative provides the firm with the opportunity to build invisible assets through greater learning and more time/practice to improve processes. In addition, this finding aligns with Porter's and van der Linde's (1995) perspective that firms actively seek opportunities for environmental innovation. Finally, this finding contrasts with the criticism that Palmer et al (1995) makes of Porter and van der Linde's work with respect to their belief that firms are not vigilantly looking at environmental quality-improving innovations. The results of this study show innovation is top of mind for decision makers.

Marketing and Sales

The marketing and sales theme was also tied for the most number of constructs and it scored above the overall average on its percent similarity score (indicating prevalence

and importance). With decision makers viewing the program as a sales and marketing tool in terms of driving customer demand and convincing customers, there is an alignment with the current field of green or environmental marketing as described by such authors as Kotler (2011) and Vazifehdust et al (2011). Vazifehdust et al's (2011) description of green marketing activities, such as green positioning, green promotion, and green selling, fit with constructs identified in the marketing and sales theme. These findings also corroborate Chen's (2010) brand equity research into the environmental context, that the green brand image is a driver of green brand equity. In this sense, the decision to participate in a voluntary environmental program is being viewed in light of its potential to increase sales as a way of convincing the customer that the firm and its homes are green.

Differentiation/competitive advantage

The idea of improving the firm's competitive advantage by setting the firm apart from their rivals in the customer's eyes was also a prominent and important way of construing the decision to participate in the program. In the elicitation of constructs, interviewees provided, in their own words, terms like "differentiation", "niche" and "competitive advantage" when describing their decision to participate. This idea of using program participation as a basis for differentiation/competitive advantage aligns with Porter's (1980) work on competitive advantage and the use of focus and differentiation strategies in the marketplace. In this sense, the idea of using the program as a way of setting the company apart in the marketplace was a key way of construing the decision to participate.

Management/Decision making issues

As previously described, constructs provided in the management/decision making issues theme were focused on construing the program as a management or decision making tool. This finding parallels Howard-Grenville et al's (2008) finding that there is interplay between internal, managerial factors and corporate environmental practices. This finding is also supportive of Darnall et al's (2000) assertion that firms are adopting

environmental programs to help them more effectively and efficiently manage their environmental impact through better integration of environmental concerns throughout their operations. In other words, interviewees were seeing the decision to join the program as a way to help them run their business.

Although viewing the program as an internal management or decision making tool was fairly common, it was relatively unimportant suggesting that it is just one factor taken into account when business decisions in general are made by home builders.

Customer engagement

Although the idea of viewing Built Green Canada as a way to engage customers could be tied into marketing and sales elements, there was a common thread that this was really about what was best for the customer or caring for the customer. Although this theme (suggesting that participation in the program is construed as a way of maintaining a focus on the customer) was common, it was relatively less important.

This idea of customer focus aligns with prior studies that looked at the customer as a source of stakeholder pressure (Annandale et al, 2004; Arora and Cason, 1996; Darnall et al, 2000; Henriques and Sadorsky, 1996 and 2008). The results of this study would refute findings by some researchers that customer or consumer pressure was not a factor or reason for participating (González-Benito and González-Benito, 2005; Khanna et al, 2007; Wu and Wirkkala, 2009).

Legitimacy/authenticity/integrity

The legitimacy/authenticity/integrity theme was seen as important as it was the highest scoring theme in terms of average percent similarity score. It also scored above average in terms of the number of high H-I-L values. This theme was also widely held. Constructs related to a belief in values, doing the right thing, being true to one's word, and verifying product environmental performance that were part of this theme are reflective of prior studies that identified trust or ethical considerations as part of the

decision to join (Chen, 2010; González-Benito and González-Benito, 2004; Paulraj, 2009). The legitimacy/authenticity/integrity view also aligns with Henriques' and Sadorsky's (2008: 147) work where they state that participation in a voluntary environmental program is, "...particularly useful to firms in establishing intangible values like goodwill, legitimacy, reputation, and trust, which enable an organization to differentiate itself from its competitors and build competitive advantage." A few of the interviewees described their construct with a popular culture reference by mentioning the 'do it right' work of Canadian television personality Mike Holmes who is well known for repairing poorly constructed homes or renovation projects.

Communication/Education

The idea of informing, explaining, and two-way flows of information was at the midway point in terms of prevalence, and it was generally viewed as less important in terms of its average percent similarity score and average number of high H-I-L values. There is very little in the literature that considers the construal of the decision to join a voluntary environmental program as a communication/education issue explicitly. While there is some reference to using a voluntary environmental program as a stakeholder engagement tool (Henriques and Sadorsky, 2008), the concept of stakeholder engagement in the literature is better aligned with the previously mentioned customer engagement theme. In addition, the constructs provided by the interviewees were more in line with using the program as a tool to facilitate the sharing of information with many parties (both internal and external) as opposed to a singular focus on external engagement.

Control (internal/external)

While prior studies on voluntary environmental programs do not focus specifically on issues of control, all of the studies indirectly address it by either examining forces within the company (e.g. González-Benito and González-Benito, 2004; Sharma and Sharma, 2011), external to the company (e.g. Mikler, 2007; Henriques and Sadorsky, 1996), or a combination of both (e.g. Bansal and Roth, 2000; Wu and Wirkkala, 2009).

In terms of viewing the decision to participate as a control issue, this theme had the lowest average percent similarity score and second lowest number of high H-I-L values indicating it was relatively unimportant. It was also below the mid-point in terms of prevalence. This theme likely emerged as a result of the interviewees' interpretations of the internal and external nature of the supplied elements used to elicit the constructs.

Identity and image

While linkages could be drawn to marketing and sales elements, this theme more precisely related to construing the decision to participate as tied to corporate image and being viewed as a professional builder. Although not as prevalent as other themes, it was seen as important. Chen (2008) reported that firms exhibiting green core competencies witnessed positive effects on their image of being a green company. This finding supports the idea that decision makers view the decision to join a voluntary environmental program as in part to do with their identity and image as a professional or green builder. In addition, while other studies do not specifically name 'identity and image' as part of the construal of the decision to participate, many studies include ideas of identity and image in their discussion of competitiveness (Henriques and Sadorsky, 1996; González-Benito and González-Benito, 2004).

Product quality/energy efficiency

Intuitively one might expect that part of the construal of the decision to participate in a green building program is to build more energy efficient homes. This study confirms that view with the product quality/energy efficiency theme constructs that were shared by about half of the interviewees. It was also relatively important. This supports the notion that builders view the decision to participate in the program as a way to improve product quality/energy efficiency. This underscores Chen's (2006) findings that the more firms invest in green core competences, the better their green product performance.

Environmental impact

Also one might expect intuitively the decision to participate in an environmental program to be environmentally motivated. This theme, however, was not widely shared with only 10 constructs being elicited related to ‘doing the right thing for the environment’. Although not widely shared, this theme was very important for those interviewees who identified this construct with the highest percent of scores with a high H-I-L value. In other words, for the minority of builders that construed the decision to participate in Built Green Canada as a real environmental focus as opposed to other reasons, it was an important consideration. The idea of joining a voluntary environmental program for truly environmental reasons corresponds to the ecological responsibility element of Bansal’s and Roth’s (2000) Model of Corporate Ecological Responsiveness. So while this model is very relevant to a few firms’ motivations, it does not relate strongly to the motivations of most builders as they themselves construe what affects them.

Profit (cost/revenue drivers)

The idea of viewing the program in terms of cost and efficiencies as opposed to revenue or cost-recovery was not widely shared nor was it seen as particularly important. While there was a general recognition that environmental actions (e.g. reducing inputs and waste) during the construction process could save the firm money, it was generally reported that the current state of the technology in the industry meant that including additional environmental or energy efficient features added to the costs of the firm. In other words, while the concept of Porter and van der Linde’s (1995) innovation offsets were seen as possible in the future, the market was still seen by interviewees as being in the early stages of its life-cycle with costs exceeding benefits. The Government of Canada’s national housing agency noted this cost and life cycle issue with their Equilibrium sustainable housing demonstration initiative (Canada Mortgage and Housing Corporation, 2012). They found that environmentally friendly homes had higher upfront costs to build than conventional housing, but they were forecasting as more of these homes are built, experience and demand are expected to increase, driving

down the cost of construction over time (Canada Mortgage and Housing Corporation, 2012).

Time horizon (short vs. long)

The idea of construing the decision to join a voluntary environmental program from a temporal aspect was not widely shared nor was it seen as particularly important. This mirrors the relative scarcity of this topic in the literature. From the interviews, there was not a clear consensus in the constructs of what constituted short versus long term in this theme. Short term horizon descriptions ranged from immediate day-to-day issues to outwards of up to two years. Long term horizon descriptions ranged from as little as two years out to as far out as 'future generations'.

Company View

This theme of company view had the lowest number of categorized constructs (not widely shared), and it scored below the overall averages for both its percent similarity score and had the lowest score for its average number of high H-I-L values (less important). The low prevalence and importance of this theme is also reflected by its relative absence in the literature. While some studies (e.g. Annandale et al, 2004; Darnall et al, 2010b; Morgenstern and William, 2007) make reference to the sponsorship of a program (public/government voluntary programs, negotiated agreements between business and government, or unilateral agreement by industry firms), the focus of these studies is not related to the construal of the decision to participate. For example, Darnall et al (2010b) looked at the issue of voluntary environmental program sponsorship (government versus industry), that study focused more on the varying level of stakeholder influence as opposed to member views. As the Built Green Canada program was created by home builders, this finding would support the notion that joining the program is viewed by some participants as a way to serve for the overall betterment of the industry as opposed to just company gain.

5.2.2 Conclusions on the Construct Themes

The preceding discussion on the categorization of the constructs elicited on the construal of the drivers/pressures on the decision to participate in the Built Green Canada program provided answers to the first research question and how decision makers make sense of their choice to join a voluntary environmental program. The first research question was as follows:

1. How do participating home builders construe and make sense of the drivers/pressures to which they are exposed in making the decision to participate in a voluntary environmental program (Built Green Canada)?

The RGT interviews generated 265 elicited constructs which were categorized into 14 themes. The two most common themes were Innovation/industry leadership and Marketing and Sales. In other words, home builders' most widely held view of the construal of the drivers/pressures to which they are exposed in making the decision to participate in a voluntary environmental program relate to viewing the decision as a function of seeing themselves as being a leader or innovator in the industry combined with idea of using the program as a marketing and sales tool. Other themes that were shared by many decision makers related to Differentiation/competitive advantage, Management/ Decision making issues, Customer engagement, and Legitimacy/authenticity/integrity. In other words, the view that the program could help set the firm apart, provide tools for running the company, help focus attention on customers, and ensuring the firm was doing the right thing were also prevalent.

In terms of importance, the category with the highest average percent similarity (percent matching) score was Legitimacy/authenticity/integrity while the Environmental impact theme scored the highest percentage of High H-I-L values. This highlights that the view of the decision to join the program as part of 'building it right' as well as 'doing the right thing for the environment' were most important.

The themes of Environmental impact, Profit (cost/revenue drivers), Time horizon (short vs. long), and Company View were less prevalent or not as widely shared. Themes that were less important in terms of viewing the program were Time horizon (short vs. long) and Company View.

In summary, these findings cast a particular light on what has been known in the literature. Of the factors mentioned by other studies, differentiating the firm through environmental leadership and innovation appear to be particularly important while using environmentally friendly techniques to gain cost efficiencies during construction are less important as construed by the participants in the program.

5.3 Empirical Outcomes: Elements – Importance of the Drivers/Pressures

The second research question has been designed to assess the relative level of importance that home builders attribute to the drivers/pressures to participate. In order to assess the overall importance of the drivers/pressures, all interviewees were presented with an overall supplied construct (Honey's 1979 Technique). The elements provided were the drivers/pressures indicated in the literature that motivate firms to participate in these programs as well as an element identified in a preliminary interview with a home builder prior to the piloting of the study. The pilot study and a check with main study interviewees indicated that the 10 supplied elements were comprehensive (interviewees could not think of any additional drivers/pressures when asked).

5.3.1 Discussion of the Elements

The element analysis presented in Chapter 4 identified the importance of the drivers/pressures. Six elements scored high in importance, three scored low in importance and one element had a fairly equal distribution of rating scores indicating it was somewhat of importance. The drivers/pressures that were important to home builders in terms of their decision to participate in the Built Green Canada program were handling competition, appealing to customers, acquiring technical knowledge, obtaining publicity, building corporate culture/identity, and obtaining third party

certifications. In contrast, creating cost efficiencies, responding to trades/suppliers, and accessing government incentives were found to be of low importance. The driver/pressure related to pre-empting/influencing government legislation was deemed to be somewhat of importance.

In terms of alignment with the extant literature, Henriques' and Sadorsky's (2008) review article identified four main motivators for firm participation in voluntary environmental programs. These included government regulation, cost efficiency, stakeholder relations and knowledge gain/technical assistance/incentives. This study provided mixed results in terms of supporting their claims.

In terms of the results obtained from the 32 interviews, the driver/pressure to 'Acquire technical knowledge' was seen as important and this supports the motivator related to knowledge gain in the literature. During the interviews many home builders indicated that the training and information on energy efficient and environmentally friendly building practices provided by Built Green Canada was very important to their decision to join the program.

The main motivator identified by Henriques and Sadorsky (2008) related to government regulation was generally supported by this study's finding that the supplied element of 'Pre-empting/influencing government legislation (e.g. building code changes)' was somewhat of importance. While builders recognized that the Built Green Canada program plays a role in lobbying the government on building code issues, there were mixed results on whether this was an important reason or not for them to join the program.

For the design of this study, the stakeholder motivation driver/pressure was categorized into two distinct groups. The first was customers and the second was trades/suppliers. Builders indicated that appealing to customers was an important driver/pressure, but responding to trades/suppliers was of low importance. This finding partially supports Henriques' and Sadorsky's (2008) claim that stakeholder relations are a main motivator.

The findings of this study were not supportive of Henriques' and Sadorsky's (2008) claim that cost efficiencies and an incentive mechanism are motivating factors to join a voluntary environmental program. The supplied element of 'Creating cost efficiencies for your organization' scored low in importance. Many builders recognized that environmental actions (e.g. reducing inputs and waste) during the construction process had the potential to create cost efficiencies and save the firm money. However, it was generally reported that the current state of energy efficient and environmentally friendly technologies or materials in the residential construction industry meant that including green features generally added to their costs (time and materials). The supplied element of 'Accessing Government/CMHC Incentives' also scored low in importance. While most builders were aware of various energy efficiency rebate programs offered by government, most indicated the incentives were too small to justify the administrative expense of applying.

In assessing the findings from this study against other key studies examining motivators to participate in a voluntary environmental program, the results are mixed. The following table compares the importance of drivers/pressures described in this study with other research findings.

Table 5.2 – Driver/Pressure Alignment with Other Studies		
Study	Alignment	Areas of Alignment
Arora and Cason (1996)	Agrees	Agrees: consumer contact and public recognition
Lyon and Maxwell (1999)	Agrees	Agrees: shape government regulations
Videras and Alberini (2000)	Agrees	Agrees: publicity and information/technology transfer
Howard-Grenville et al (2008)	Agrees	Agrees: organizational culture and organizational identity
Darnall et al (2000)	Mixed	Agrees: public relations and customer demands Disagrees: suppliers
Annandale et al (2004)	Mixed	Agrees: customer pressure and corporate culture Disagrees: cost savings
González-Benito and González-Benito (2005)	Mixed	Agrees: competitive motivations Mixed: stakeholder motivations
Khanna et al (2007)	Mixed	Agrees: competitive pressures Disagrees: consumers pressure
Henriques and Sadorsky (2008)	Mixed	Agrees: knowledge gain and government regulation Disagrees: cost efficiency and incentives Mixed: stakeholder relations
Wu and Wirkkala (2009)	Mixed	Agrees: competitive pressures, high costs deter Disagrees: consumer pressures
Darnall et al (2010b)	Mixed	Mixed: stakeholder relations

As the table above highlights, this study's findings of important drivers/pressures is generally in alignment with previous research that identified competitive pressures, culture and identity, information/knowledge gain, publicity and government regulation. Previous studies reported varying results for consumer pressure, but this study found that appeal to customers was of importance. This study did not support the findings of other studies that indicated supplier pressure, cost savings/efficiencies, or incentive mechanisms were important factors in a firm's decision to join a voluntary environmental program.

5.3.2 Conclusions from the Elements Analysis

The preceding discussion on the element analysis to determine the importance of the drivers/pressures on the decision to participate in the Built Green Canada program provided answers to the second research question. This research question was:

2. To assess the relative level of importance of the drivers/pressures identified in the literature that decision makers in the home building industry attribute to their decision to participate in a voluntary environmental program (Built Green Canada).

The element analysis of the overall supplied construct (Overall, important to my decision to participate - Overall, less important to my decision to participate) was used to assess the relative level of importance that home builders attribute to the drivers/pressures to participate. The results indicated that for the builder members of the Built Green Canada program interviewed in this study, the drivers/pressures related to handling competition, appealing to customers (improve customer stakeholder relations), acquire technical knowledge (receive technical assistance), obtaining publicity, building corporate culture/identity, and obtaining third party certification were important. The driver/pressure to pre-empt or influence government regulation was somewhat important. Finally, the drivers/pressures related to creating cost efficiencies, responding to trades/suppliers (improve supplier stakeholder relations), and accessing Government/CMHC incentives (an incentive mechanism) were not important.

It was also observed that all of the less important drivers/pressures were more inward or company focused while any outward or market focused drivers were seen as having higher importance. This finding ties into the construct analysis where some of the most common and important ways of construing the decision to participate were more externally focused (i.e. marketing and sales, industry leadership, differentiating the firm and customer engagement).

5.4 Reappraisal of the Model of the Decision to Participate in a Voluntary Environmental Program

A model of voluntary environmental program decision making was developed and presented in Chapter 2 based on a synthesis of the literature (see figure 5.1 below).

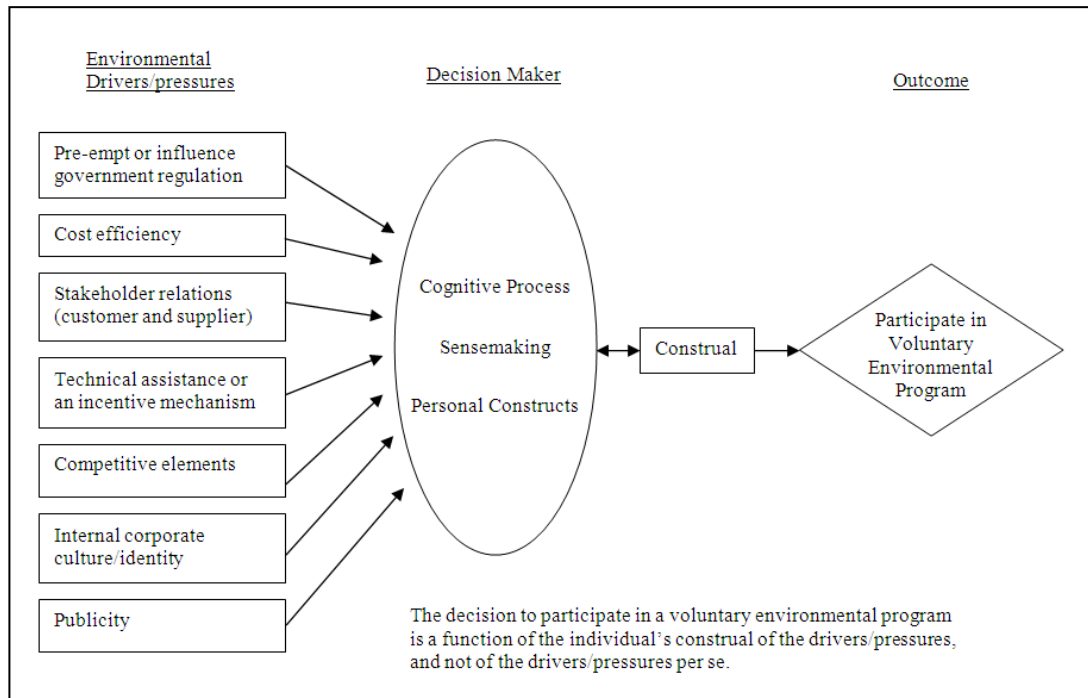


Figure 5.1: Original Model of the Decision to Participate in a Voluntary Environmental Program

This model incorporated the main motivators or drivers/pressures identified in previous studies with the cognitive processes of the decision maker in the context of sensemaking and personal construct theory. The decision to participate was shown as a function of the decision maker's construal of the drivers/pressures.

This model has been reappraised and revised based on the results of the construct themes and element analysis from the main study that have been previously discussed in this Chapter. This revised model incorporates findings on what drivers/pressures are important to home builders as well as the themes identified in how they construe the drivers/pressures. The following figure presents this revised model:

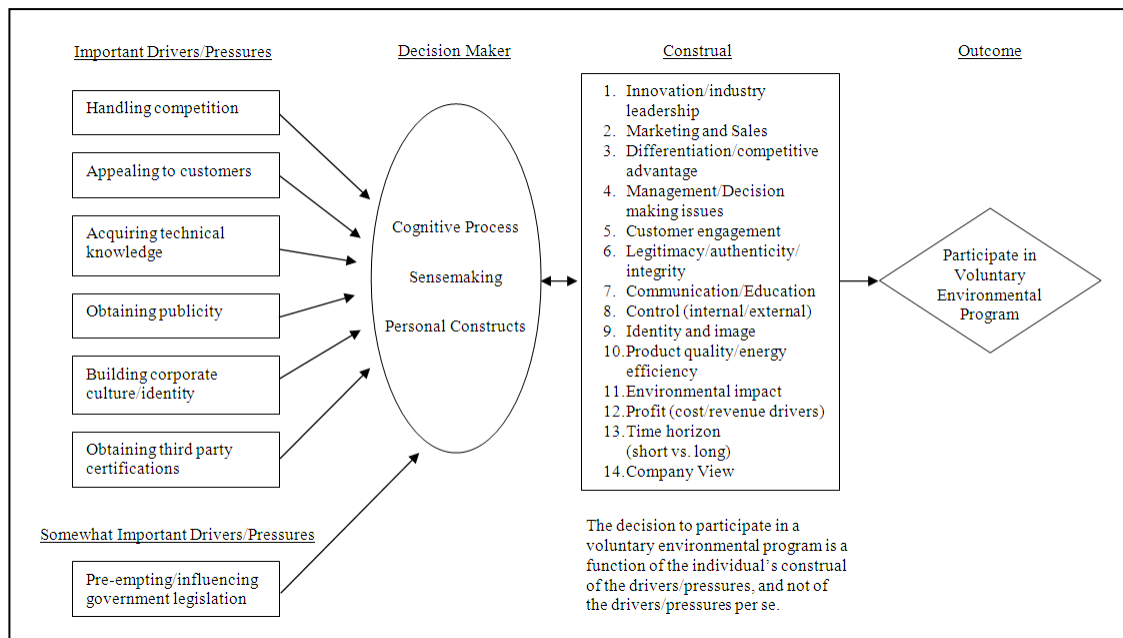


Figure 5.2 Reappraised Model of the Decision to Participate in a Voluntary Environmental Program

As opposed to the original model, this reappraised model is specific to the home building industry. It expands on and differs from the original model in a number of ways. Firstly, the drivers/pressures were listed based on their expression as elements in the study (see Chapter 3). Next, the drivers/pressures were categorized based on importance (important and somewhat important). Drivers/pressures that were found to be unimportant to the housing industry were dropped (e.g. cost efficiency, stakeholder relations for suppliers, and accessing incentives). The reappraised model also provides details on the themes of construal in declining level of prevalence. In other words, this reappraised model highlights how the decision makers see and make sense of the drivers/pressures impacting on their decision to participate.

5.5 Emergent Findings: Active versus Passive Participants

As previously described, the content analysis of the interview data revealed two emergent groups based on the percentage of new homes they certified with Built Green Canada. While all interviewees were builder members of the Built Green Canada program, one group choose to certify the majority (in many cases all) of the homes they

built with the program. This group, who took advantage of the program, was labelled active participants. The second group certified very few, if any, of their homes with the program. This second group, who while members of the program did not take advantage of its new home certification process, were termed passive participants. In total, there were 16 active participants with 140 elicited constructs and 16 passive participants with 125 elicited constructs in the study.

This emergent finding of active and passive participants allowed for a comparison of differences in construing between members of the program who build Built Green Canada certified homes and members of the program who do not build Built Green Canada certified homes. This emergent finding of active and passive program participants was significant as it provided the opportunity to do a comparative case study analysis within the context of the broader study.

5.5.1 Conclusions on Active and Passive Participant Construal

The analysis comparing the categorized constructs of active versus passive participants (see section 4.3.2) revealed that active and passive participants by and large construe the decision to participate in the Built Green Canada program in the same way. While active and passive participants tend to think similarly, differences were noted for two of the themes with respect to the number of constructs. The construal of Management/Decision making issues and Customer engagement between active and passive participants was of interest in their level of difference. In addition, differences were also noted between active and passive participants in terms of the level of importance for two of the themes. Significant differences in the H scores were found for construal of Management/Decision making issues and Identity and image.

Comments on Differences of Active and Passive Participants

The data suggested that active participants were more likely to view the Built Green Canada program as a management/decision making tool than passive participants. In this sense, active participants were more likely to see the program as part of how they

functioned or operated the business. This is not surprising as one of the goals of their business is to build Built Green Canada certified homes. As passive participants only certify a few, if any, of their homes with the program, it intuitively makes sense that management and decision making aspects of the program would be less on their mind.

While active participants were more likely to view the Built Green Canada program as a management/decision making tool than passive participants, they placed a lower level of importance on this theme than passive participants. While this finding may seem paradoxical at first, it could be related to active participants' familiarity with the program. In other words, for active participants, Built Green Canada is seen as a management/decision making tool used on the production of most if not all of their homes, and has thus become more second nature than for a passive builder who must more closely follow the guidelines when building a certified home due to their limited exposure with using the program. Where active participants do place the emphasis of importance over passive participants relates to the aspects of identity and image conferred through involvement in the program. This intuitively makes sense, as active participants want to be seen and recognized for their environmental accomplishments of building green homes while passive participants with their limited number (if any) of certified homes would likely not want to draw attention to this fact.

Passive participants were more likely to view the program as a customer engagement tool than active participants. Within this theme, constructs elicited from passive participants were more focused on convincing the customer or influencing the customer's purchase decision. Constructs on customer engagement elicited from active participants, on the other hand, generally appeared more in line with customer care concerns or doing what was best for the customer. In this sense, it appears that passive participants view the idea of customer engagement more in terms of making the deal (more a sales focus) while active participants view it as more of a customer care issue (customer relationship view).

Other Comments on Active and Passive Participants

It was also identified that one of the themes with the most constructs for active participants was Innovation/industry leadership. The constructs in the Innovation/industry leadership theme focused on the idea of active participants seeing themselves as being a leading firm in the industry in terms of environmental responsibility, being proactive, and more inclined to try new technologies or building techniques. Some constructs even included the idea of making the whole industry better by raising the overall level of environmental performance. In this sense, active participants construe the decision to participate in terms of actually seeing themselves as a leading company. While for passive participants, the Marketing and Sales theme was one of the most widely shared. This theme paralleled the passive participants' thinking in the Customer engagement category with construal of the program related to seeing it as a sales and marketing tool in terms of driving customer demand and convincing customers.

With respect to the importance of the themes, for active participants the Identity and image theme was paramount and significantly higher. For active participants, constructs of being seen as doing the right thing or being socially responsible were prominent both in terms of company identity and for recognition. Relating this back to the prevalence of the Innovation/industry leadership theme, it can be seen that active participants want to be environmental leaders in the industry and be seen or recognized as doing so. This aligns with other themes of relative importance for active participants that related to Product quality/energy efficiency, Environmental impact, and Company View. For passive participants, significantly more importance was placed on the Management/Decision making issues theme. Some of the constructs elicited by passive participants in this category can be directly related back to the sales and marketing idea, in terms of day to day activities related to selling homes, that was more prevalent with passive participants.

5.5.2 Conclusions on Active and Passive Participant Elements Analysis

As outlined in section 4.4.2, statistically significant differences were observed in the level of importance that active and passive participants had for three of the supplied elements (drivers/pressures). Active participants indicated a greater level of importance than passive participants for the drivers/pressures related to Creating cost efficiencies for your organization, Building corporate culture/identity, and Obtaining third party certification.

These findings correspond with the previous discussion on differences in the active and passive participants' construal of the decision to participate. The greater importance placed by active participants on building corporate culture/identity ties into their emphasis on their view of the identity and image theme. With active participants seeing the decision to join as being related to being seen as doing the right thing or being socially responsible, this finding further reinforces that for active participants it is important to be seen or recognized this way widely in the marketplace.

The importance of obtaining third party certifications also reinforces the idea that active participants want to be seen as leaders and innovators in the industry, as third party certifications are a way to independently verify and showcase their performance. It is also not surprising that the driver/pressure of obtaining third party certifications is more important to active participants as opposed to passive participants since passive participants are certifying so few of their homes whereas many active participants are certifying all of their houses. In other words, if a builder is choosing not to certify their homes, it is not surprising that obtaining the certifications is less important to them than for a builder who is choosing to certify their product.

Finally, based on interview conversations, it appears the added importance that active participants ascribe to creating cost efficiencies for their organization stems from their greater commitment to the program and building green. In this sense, it appeared that active participants believed that greater commitment to environmental programs over time will yield better efficiencies and lower cost ways of incorporating environmentally

friendly and energy efficient building products and processes in the future. Some of this can be seen in the active participants' construal of the time horizon with longer term described as future generations as opposed to just a few years in the future. While active participants were clear in indicating that currently adopting green building products and practices was more costly than code building requirements, they articulated that as more and more builders adopt environmentally friendly building practices and products, these costs would come down over time (experience curve and economies of scale effects).

5.5.3 Incorporating Active and Passive Participants into the Reappraised Model of the Decision to Participate in a Voluntary Environmental Program

In light of the emergent finding on active and passive program participants, the reappraised model (as presented in Figure 5.2 above) has been modified to add a second construal point. See Figure 5.3 below. This reappraisal is example of how the multiple case study approach provides for an iterative process that is useful in creative reframing and building theory (Eisenhardt, 1989).

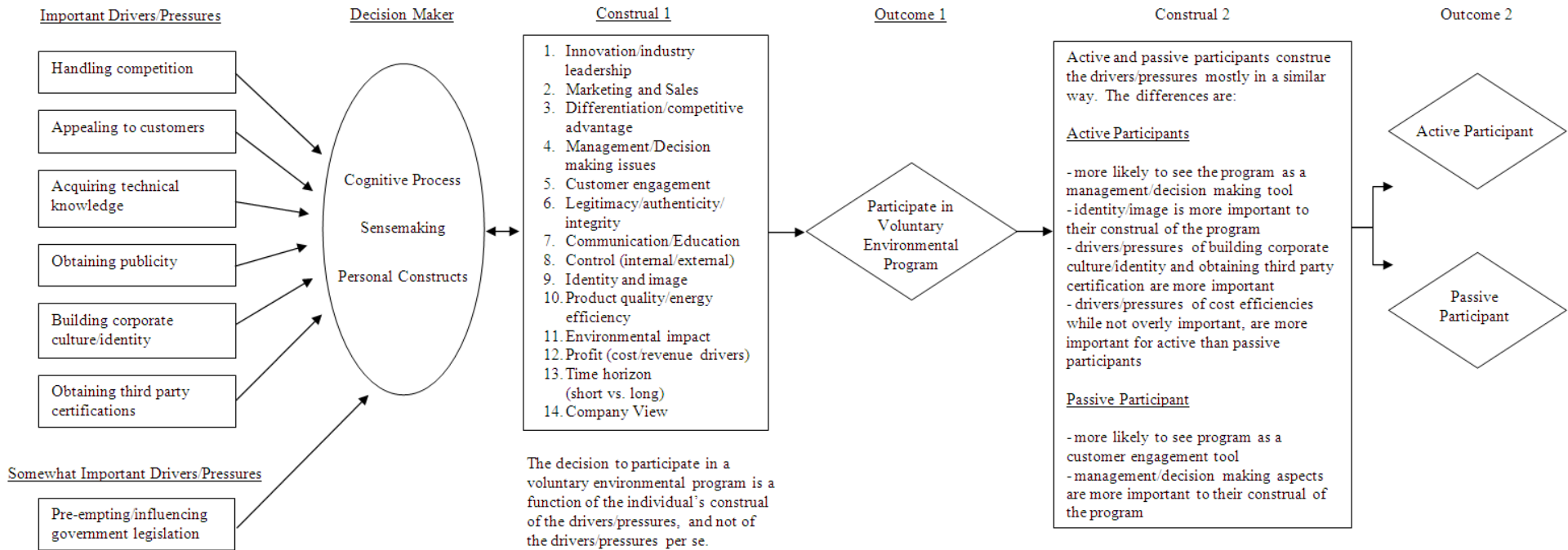


Figure 5.3 Reappraised Model of the Decision to Participate in a Voluntary Environmental Program Including Level of Participation (Active or Passive)

This model adds a second construal point and a second outcome to the reappraised model. This second construal point on the diagram occurs after the decision to join the voluntary program occurs and relates to the operational aspect of deciding whether or not to register homes to be certified through the program. The construal of the decision to participate between active and passive participants is for the most part similar. Differences in construal relate to the prevalence of themes on management/decision making issues and customer engagement as well as the level of importance of themes on identity and image and management/decision making issues. While the general level of importance for the drivers/pressures is similar for active and passive participants, there are differences in the relative importance for the drivers/pressure related to creating cost efficiencies, building corporate culture/identity, and obtaining third party certification.

5.6 Chapter Summary

This chapter examined and evaluated the findings and analysis from Chapter 4. This chapter also provided answers to the research questions including references to the literature and a reappraisal of the model of the decision to participate in a voluntary environmental program. The emergent findings of active and passive program participation were incorporated into the discussion. The next chapter details the significance of the research, its academic and professional contributions, its limitations, and provides suggestions for future study.

CHAPTER 6: CONCLUSION

6.1 Introduction

The preceding chapter provided a discussion and interpretation of the findings and analysis from this study. The emergent findings of active and passive program participation were incorporated into the discussion. This previous chapter also provided answers to the research questions including references to the literature and a reappraisal of the model of the decision to participate in a voluntary environmental program. This chapter provides a summary of the research, details the significance of the research, its contribution to the knowledge base, its contribution to practice in the industry, its limitations, and provides suggestions for future study.

6.2 Research Summary

This research is a study of sensemaking (Weick, 1995) using Personal Construct Theory (Kelly, 1955 and 1963) to examine the construal of the drivers and pressures that influence decision makers when they think about their decision to participate in a voluntary environmental program. The context of this research is the new home building industry in Alberta (Canada) with respect to the Built Green Canada voluntary environmental new home certification program.

The primary data collection method was the Repertory Grid Technique in alignment with the phenomenological and constructivist research paradigm of this study. Both qualitative and quantitative data was collected in the interviews providing for concurrent triangulation (Creswell, 2003). A total of 32 interviews generated 297 constructs. A content analysis was performed on the aggregate grid data and an element analysis was performed on the supplied construct. An emergent finding of active and passive participants was also identified.

The results of the study provided for the identification of the main ways or themes that decision makers use to construe or view the decision to participate in a voluntary environmental program. An assessment of the importance of the drivers/pressures that influence the decision was also produced. Finally, the emergent finding of active and passive participants was also analyzed and discussed. This study makes both academic and professional contributions.

6.3 Academic contributions

This applied research study is significant as it assists in refining the emergent field of environmental decision making and planning within a specific context (by industry and geography) that has not been previously researched. There is a lack of research on the environmental decision making of home builders in Alberta specifically and in Canada more generally. With this study's focus on the residential construction industry in Alberta, multiple case studies employing literal replication logic provided new knowledge on home builder decision making and cognition with respect to participation in a voluntary environmental program. This study also contributes to addressing gaps in the current literature field with respect to studies calling for further research on environmental management and voluntary environmental program decision making as presented in Table 2.4. In addition, as the residential construction industry makes a significant impact to the economy and job creation (Canada Mortgage and Housing Corporation, 2010), increasing the understanding of decision making in this industry is valuable. Finally, as houses are more than just structures, they are homes, an understanding how home builders think about environmental and energy efficiency issues is important to current and future homeowners.

For the home building industry, this research makes a contribution to the knowledge base on a number of different fronts. Firstly, it provided a new way of looking at decision maker construal of the drivers/pressures to participate in a voluntary environmental program. The predominant themes in the literature are to look at issues of going green from a competitiveness aspect (Porter and van der Linde, 1995, Hart, 1995) or to examine underlying motivators (Bansal and Roth, 2000). However, by building on these works and by looking at how home builders make sense of the various

drivers/pressures they face to go green, this study takes a novel approach at examining the subject. In other words, this study did not look at the decision to participate in terms of the drivers/pressures per se, but rather the individual decision makers' construal of the drivers/pressures.

It was determined the most widely held construal of the drivers/pressures on the decision to participate were a function of seeing their firm as a leader or innovator in the industry combined with idea of using the program as a marketing and sales tool. Other views that were identified included the idea that the program could help set the firm apart from its competition, provide tools for running the company, and help focus attention on customers. It was also found that home builder views of 'building it right' as well as 'doing the right thing for the environment' were important in the way they construed the decision to join the program.

In making a contribution to the knowledge base with respect to supporting prior studies on motivators to go green, the element analysis of the supplied construct provided a number of areas of agreement and disagreement with the extant literature. For the residential construction industry, it was found that six specific drivers/pressures were of particular importance including handling competition, appealing to customers, acquiring technical knowledge, obtaining publicity, building corporate culture/identity, and obtaining third party certifications. These findings were generally in alignment with the literature, although there is disagreement on the importance of customers in some previous studies (Khanna et al, 2007; Wu and Wirkkala, 2009).

Drivers/pressures of low importance were found in this study to be cost efficiencies, trades/suppliers, and incentives. The findings in this study, specific to the housing industry, disagreed with prior research that found cost efficiencies (Porter and van der Linde, 1995; Annandale et al, 2004; Henriques and Sadorsky, 2008), stakeholder relations with suppliers (Darnall et al, 2000; Henriques and Sadorsky, 2008), and incentive mechanisms (Henriques and Sadorsky, 2008) as important motivators for firms to go green. Whatever else motivates participation in such programs, when the

participants were asked, they mentioned that the current incentive schemes do not especially work and that cost savings are not in the forefront of their thinking.

The emergent finding of active and passive participants was also a significant contribution to the study of voluntary environmental programs. Prior studies (Darnall et al, 2010a; Khanna et al, 2007) have examined the notion of firms who join voluntary environmental programs (proactive) with those who did not join (reactive). This study identified that within the 'proactive' group of firms who have joined a voluntary environmental program, there are different levels of commitment or adoption (active versus passive). In this sense, the decision to participate in a voluntary environmental program of this kind is constantly being made and re-made, even after initially joining the formal program.

A model of the decision to participate in a voluntary environmental program was developed from the literature review. The model was reappraised based on the findings and analysis of the interviews including the emergent finding of active and passive participants. This resulted in refinement of the model to one that depicts the decision to participate in a voluntary environmental program for the home building industry.

This study also makes a contribution to the validity and usefulness of the repertory grid technique method in business research to identify and analyze decision maker construal. Fransella et al (2004) outline a number of areas and uses where the repertory grid has been put to use, and this study supports its use as an organizational and business application of the technique. In this sense, the technique was useful to generate new findings that could not have been arrived at with different techniques (e.g. surveys).

6.4 Professional contributions

An understanding of the decision to participate in a voluntary environmental program is useful for industry, voluntary environmental program organizations, and government.

6.4.1 Home Building Industry

For members of the home building industry, getting a better understanding of the decision to join a voluntary environmental program provides them with additional knowledge on how they think about the environmental management decision making process. It also provides home builders with a better understanding of what drivers/pressures are important to them and their competition in making the decision to participate. From a competitive standpoint, the housing industry was previously characterized as fragmented (Langford and Male, 2001) with a large number of small and medium privately held firms competing in a diverse market with high product differentiation (Porter, 1980). The additional understanding of what motivates a competitor to join a voluntary environmental program is useful for a home builder in formulating their competitive strategy especially when it comes to setting themselves apart from the competition (a key theme identified in this study).

As identified in this study, being seen as a leading or innovative home builder is particularly prevalent among members of this industry as they compete for potential new customers. It was also identified that the view of seeing themselves as a legitimate or authentic green builder was important in building their own sense of (as well as their customer's view of) their integrity. This is also manifest in the pervasiveness that home builders ascribed to using the program as a sales and marketing tool to appeal to customers seeking an environmentally friendly home. Such an understanding of these factors might be facilitated through the provision of a brief brochure by Built Green Canada for their members highlighting these findings with respect to being an innovative home builder, demonstrating green credentials to potential customers, and using the Built Green membership as a sales and marketing tool.

Explicit knowledge of their construal of the decision to participate provides home builders with a richer perspective from which to make sense of their environment and frame environmental issues (Martin and Parmar, 2012). Also, a better understanding of the factors involved in decision making has been identified as one of the steps to making better decisions (Davenport, 2009). In other words, understanding how the

decision to participate is viewed and what factors are important in making that decision, provides home builders with additional insights on themselves and their competitors for more introspective decision making.

6.4.2 Voluntary Environmental Program Organizations

For voluntary environmental program organizations, like Built Green Canada, this study provides them with a better understanding of their members' decision to participate and what drivers/pressures are important and not important to them. This knowledge provides these organizations with the opportunity to make program improvements and better market their programs. Based on the findings of this study, voluntary environmental program providers would likely see greater success in promoting their programs to industry by highlighting it as a way for participating firms to improve their competitive advantage through differentiation from the competition. This would include using the program to emphasize a participating firm's leadership standing in the industry and their innovative nature. In addition, promoting a voluntary environmental program as a sales and marketing tool to engage customers and as a way to build their own identity by being a firm that does the 'right thing' would also likely resonate with decision makers.

Marketing a voluntary environmental program on the basis of creating cost efficiencies or as a way to manage supplier/trade stakeholder relations would likely not lead to greater interest from industry as these drivers/pressures were found to be less important. However, voluntary environmental program organizations would be well served by emphasizing how their program appeals to customers, provides their membership with technical knowledge, and provides for third party certification of environmental performance, as these were seen as important pressures/drivers.

The very nature of participation in their program should also be of interest to Built Green Canada. While the findings suggest that active and passive participants mostly construe the drivers/pressures in a similar way, by focusing on the areas of difference (as outlined in the reappraised model), Built Green Canada program administrators may

be better able to engage passive participants to take more advantage of the program. In addressing the question of why some home builders take the time and expense of joining the program, but not registering any of the homes they build, Built Green Canada should look at emphasizing the importance of the program in terms of building corporate culture/identity and obtaining third party certification. As previously described, these elements were more important to active participants. In this sense, promotions directed towards passive participants based on construct themes that were elicited from active participants, such as a way to be seen as an environmentally responsive firm that is doing the 'right thing' in a verifiable manner, would likely create effective messages aimed at increasing passive participant involvement.

In addition, by highlighting how the Built Green Canada program can serve as a management tool and facilitate organizational decision making, passive participants may be persuaded to see the program more in alignment with active participant views. Part of this effort directed at enticing passive participants to make greater use of the program should also be designed to highlight that the program is much more than just a customer engagement tool. In other words, along with promoting aspects of the program that are beneficial to selling the home, program administrators should also remind passive participants about the operational and building quality aspects of the program. Finally, by emphasizing and building on the theme of management/decision making, that passive participants already see as important, program administrators might augment passive participant interest in building more certified homes with the program. At a more general level, the emergent finding of active and passive participants that applies to Built Green Canada may also be of interest for other voluntary environmental program providers.

6.4.3 Government

Lastly for government policy makers, this study provides a number of contributions. Although Built Green Canada is an industry sponsored voluntary environmental program, many of the findings would likely be transferable for government sponsored programs. In that sense, the previously listed contribution to practice in the industry and

the organizers of voluntary environmental programs would also be applicable for government sponsored programs. One final area of particular note for government policy makers relates to this study's finding on government incentives for green home building. The use of incentive-based regulation is supported in the literature (Porter and van der Linde, 1995; Palmer et al, 1995); however, it was found that accessing government incentives was not an important driver/pressure in terms of influencing the decision to participate in the home building industry. As previously discussed, many interviewees commented that the current value of incentive programs was not adequate and that firm resources required to administer the incentive programs were not worth the effort. If government desires to use incentives to promote green home building, they should ensure that the value of these programs is high enough and that the administrative burden is low enough to encourage adoption by home builders. In addition, some interviewees expressed a preference for incentives that were paid directly to the home builder as opposed to an incentive provided indirectly by way of a rebate from the government to the customer after the home is occupied. Their argument was that a direct incentive can provide for a lower up front purchase price that would have a greater influence on the customer's decision to go green as opposed to an after the fact rebate.

6.5 Research Limitations

There are limitations to this research and the generalizeability of its findings based on the chosen research methods and design. Yin (2009) describes the criteria for judging the quality of research designs to include validity and reliability. As multiple case studies utilizing RGT interviews was the research design and primary data collection technique, a discussion of this study's validity and reliability are in order.

Using interviews to collect data is not without limitations. Interview data limitations can include personal bias and lack of awareness by interviewees (Patton, 2002). The use of the RGT was designed to overcome some of these limitations. The RGT is noted for helping remove the influence of the researcher's frame of reference (Diaz de Leon and Guild, 2003), assisting in capturing interviewees' perception of nebulous concepts (Rogers and Ryals, 2007), and minimizing researcher bias (Fassin et al, 2011). In

addition, interviews on sensitive topics can lead to social desirability bias as there is a tendency by research participants to describe themselves in favorable terms (Mick, 1996; De Jong et al, 2010). The RGT is useful for addressing social desirability bias with interviewees as the technique allows the researcher to get beneath what an interviewee might view as the right answer (Jankowicz, 2004; Rogers and Ryals, 2007).

Using case studies to collect data has limitations. According to Patton (2002), sampling adequacy limitations arise with the use of case studies. The geographic coverage of limiting the sample to Alberta based firms decreases the generalizability (external validity) of this study's findings. While Alberta represents the third largest residential construction market in the country (Canada Mortgage and Housing Corporation, 2011), expanding the study to other provinces would augment the scope of this study and provide for a more abundant base for analysis. Limiting the focus of the study to only the Built Green Canada program also decreases the generalizability of the findings to other voluntary environmental programs. As generalizations are not automatic with a case study method, replication is required to provide support (Yin, 2009). This applied research study employed literal replication logic and specifically defined the topic and scope. In this sense, the findings presented are more generalizable to industries with similar characteristics to home building (e.g. fragmented) and located in regions with business cultures similar to Canada.

Another limitation of using multiple case studies can be the development of overly complex theory and theories that are narrow in focus, in other words, modest theories about specific phenomena (Eisenhardt, 1989). Using multiple case studies in this study was seen as appropriate, given that the extant literature had limited and at times contradictory empirical substantiation; this study provided an opportunity to offer a fresh perspective and offer new insights (Eisenhardt, 1989). Finally, since multiple case studies link theory building with evidence from empirical observations, resultant theory is more likely to be empirically valid (Eisenhardt, 1989).

In a case study approach, reliability concerns the idea of replicating the same findings and conclusions if a later investigator followed the same procedures on the same cases over again (Yin, 2009). This idea of an audit or reliability check was incorporated into

this study by involving an independent collaborator in the categorization of the constructs. Following Jankowicz's (2004) reliability procedures, a reliability table was constructed and reliability coefficients were calculated (Cohen's Kappa and Perrault-Leigh Index) to confirm the level of agreement.

Fransella et al (2004) describe the validity of the RGT in terms of its usefulness and ability to effectively reveal patterns and relationships in the data. The validity of this study is demonstrated in the categorized constructs that revealed themes in the data. Finally, Fransella et al (2004) devote an entire chapter to the issues of reliability and validity of the RGT technique detailing numerous studies to highlight the range of studies where RGT has been found to be useful.

6.6 Further research

As mentioned in the previous section on limitations, the generalizability of this study could be furthered with additional studies in other regions and with other voluntary environmental programs. In this sense, a larger study involving home builders across Canada or in other nations would provide a richer picture of the construal of the drivers/pressures to participate. Looking at other voluntary environmental programs beyond Built Green Canada would also have a similar impact.

Further investigation of the Environmental impact theme identified in this study would also be of interest. As previously described, this theme was not overly common in terms of the frequency of its constructs, but it had the highest percent of H scores indicating it was important. Further study of this very important but not common theme with more in-depth research of decision maker construal of the environmental aspects/impacts of a voluntary environmental program would be illuminating.

The emergent finding of active and passive participants is also an area of interest for further research. While prior studies (Darnall et al, 2010a; Khanna et al, 2007) on voluntary environmental programs have examined the notion of firms who join voluntary environmental programs (proactive) with those who did not join (reactive),

there has been little research on differences between the active and passive firms within the proactive group. Further research on the different levels of commitment or adoption of why some firms actively engage in a program while others make the decision to join the program but do not utilize it would be informative for the research field on voluntary environmental program motivations.

Conducting additional research on the program's passive participants would be of specific benefit to Built Green Canada's administrators to help them further ascertain the thinking or better understand the reluctance of these firms that joined the program but are choosing not to use the certification process. Action research or experimental design research with the program's passive participants based on the recommendations in this study (see section 6.4) would also be useful to see if the suggestions result in greater program participation rates. Finally, a longitudinal study of the program's active and passive participants would also be of interest especially when their active or passive status changes. In this sense, a study examining what triggered the change (i.e. from active to passive or from passive to active) and observation of any changes in the construal of the drivers/pressure to participate in the program after the change would be helpful to increasing the understanding of voluntary environmental program participation.

6.7 Conclusion

This concluding chapter provided an overall summary of the research. It also detailed the significance of the research. Academic and professional contributions were also highlighted, and the limitations of this study were discussed. Finally, suggestions for further research were identified.

It is the author's firm belief that through commitment to supported methodologies biases have been reduced, and this study presents a valid and reliable picture of the construal of the drivers/pressures to participate in the Built Green Canada program.

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APPENDICES

Appendix A – Interview Guide

Begin interview by thanking participant for their involvement in the study and then reviewing the Informed Consent document.

Date	
Interviewee	
Title	
Firm	
Number of Employees	
Ownership Structure	
Age of Firm	
Number of Homes Built Annually	
Number of Green Built Homes	
Years in Built Green	
Geographic Area of Operations	
Key Trends in Green Building	

Upon completion of these initial questions, introduce the Repertory Grid Interview technique as detailed on the Repertory Grid Matrix Template.

Appendix B – Repertory Grid Matrix Template

<p>1. I am interested in finding out about the drivers and pressures that lead to your decision to join/participate in the Built Green Canada program.</p>	<p><i>(e.g. building code changes)</i></p> <p>Pre-empting/ influencing government legislation</p> <p>Creating cost efficiencies for your organization</p> <p>Handling competition</p> <p>Appealing to customers</p> <p>Responding to suppliers/trades</p> <p>Acquiring technical knowledge</p> <p>Accessing Government/CMHC incentives</p> <p>Obtaining publicity</p> <p>Building corporate culture/identity</p> <p>Obtaining third party certification</p>													<p>4. Qualifying phrase during elicitation:</p> <p>Which two are alike and different from the third in terms of their influence on your decision to participate?</p> <p><i>If necessary:</i> Use laddering down sort of questions: how/in what way/how can I tell</p> <p>Lets rate the elements on a scale of 1 to 5 with 1 being the left side of the scale and 5 being the right side of the scale.</p>	
<p>2. Ten drivers and pressures are provided. Show the cards, read out the drivers and pressures.</p>														<p>5. Supplied Construct:</p> <p>Overall, important to my decision to participate -</p> <p>Overall, less important to my decision to participate</p>	
<p>3. Now I want you to let me know what you think about these drivers and pressures and how they may have influenced your decision to participate in Built Green Canada. Anything you think is relevant as I want to understand how you view these drivers and pressures. We will be comparing these elements systematically in threes.</p>															
<p>CONSTRUCTS (Left Side - pair that are similar)</p>	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	CONSTRUCTS (Different from the other two)	%MS
1															
2															
3															
4															
5															
6															

Appendix C – Certificate of Compliance from the Red Deer College Research Ethics Board



Research Services
Red Deer College
100 College Blvd
Box 5005
Red Deer, Alberta
CANADA T4N 5H5
Telephone: 403.343.4066
Web-site: www.rdc.ab.ca/ethics

RESEARCH ETHICS BOARD CERTIFICATE

CERTIFICATION OF ETHICAL ACCEPTABILITY FOR RESEARCH INVOLVING HUMAN SUBJECTS

NAME OF APPLICANT(S) Dustin Quirk
NAME OF PROJECT Constructs and drivers impacting decision making to participate in a voluntary environmental program (Built Green Canada) in the homebuilding industry

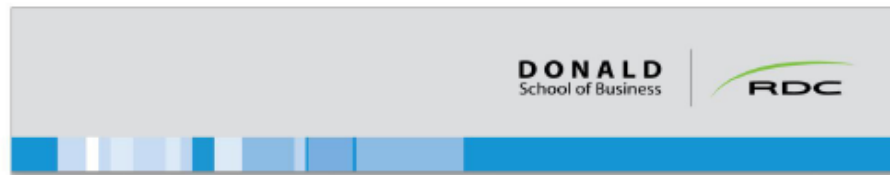
The members of the review committee, having examined the application for the above named project, consider the procedures, as outlined by the applicants, to be acceptable on ethical grounds for research involving human subjects.

This certificate acknowledges ethical research acceptability for a period of three years from the date shown below.

DATE February 24, 2012	SIGNATURE OF FINAL REVIEWER OR CHAIRPERSON OF REB 
----------------------------------	---

11/08 

Appendix D – Informed Consent



Informed Consent and Protection of Privacy for Interview Research on the Constructs and Drivers Impacting Decision Making to Participate in a Voluntary Environmental Program in the Homebuilding Industry

The purpose of this interview is to collect information about your thoughts, attitudes and values related to voluntary environmental programs in the homebuilding industry. The information collected in this study will be used to as part of the researcher's doctoral dissertation.

Typically, it takes 45 to 60 minutes to complete this interview process.

For any information that you provide, confidentiality is assured and the results will be reported anonymously. Your participation in this study is completely voluntary. You may withdraw at any time without penalty and you may choose not to answer questions; however, your thoughts are important to the success of this study.

This interview is being conducted under the guidelines/policies of the Red Deer College Research Ethics Board and the Freedom of Information and Protection of Privacy Act. If you have any questions or concerns about this study, please contact the researcher, Dustin Quirk, at the contact information below.

If you have concerns regarding this study itself that cannot be addressed by the researcher, please contact Krista Robson, Chair of the Research Ethics Board, at 403.314.2403 or by e-mail at Krista.Robson@rdc.ab.ca.

By completing this interview you are consenting to the use of your information as outlined above.

Thank you for your involvement in this research.

Dustin Quirk

Instructor | Donald School of Business
Red Deer College | Downtown Campus | 4909 49th Street
Mail to: Box 5005 | Red Deer | AB | T4N 5H5
work 403.343.4022 | fax 403.346.9190
www.rdc.ab.ca | when you get here you understand

Appendix E – Repertory Grid Pilot Study Interview 1

Display BCG Pilot Study 1 - JN

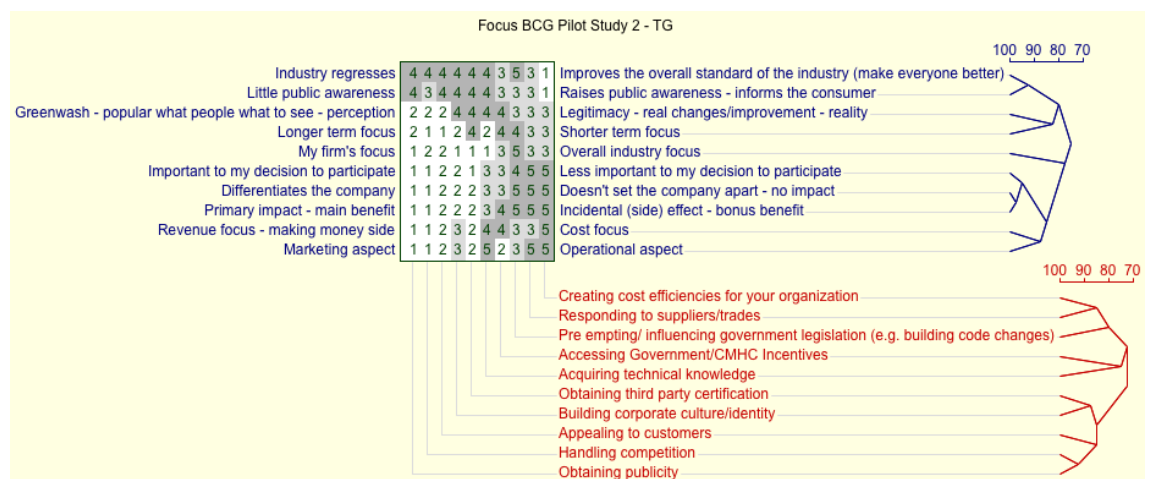
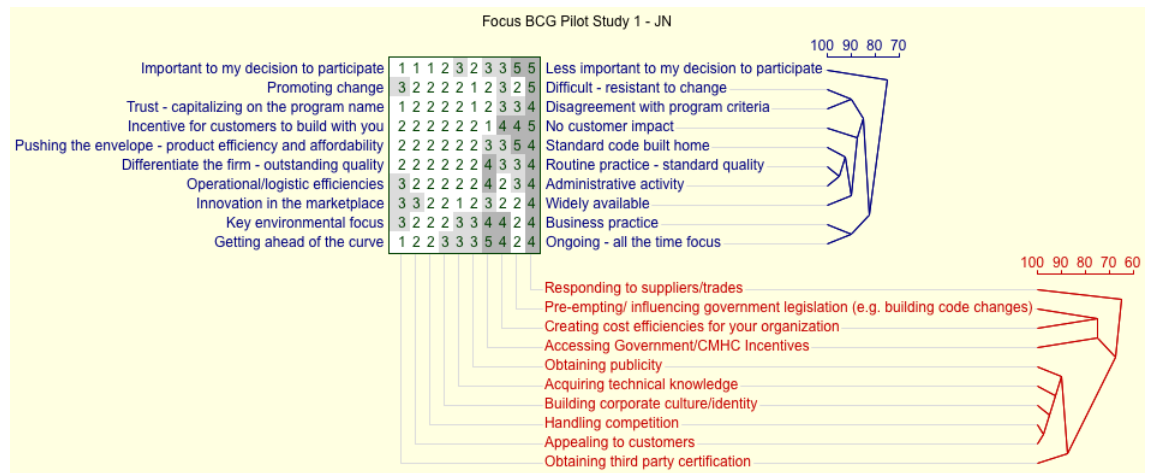
Getting ahead of the curve	2 4 2 2 4 3 5 3 3 1	Ongoing - all the time focus
Differentiate the firm - outstanding quality	3 3 2 2 4 2 4 2 2 2	Routine practice - standard quality
Innovation in the marketplace	2 2 2 3 4 1 3 2 2 3	Widely available
Key environmental focus	2 4 2 2 4 3 4 3 2 3	Business practice
Incentive for customers to build with you	4 4 2 2 5 2 1 2 2 2	No customer impact
Difficult - resistant to change	4 3 4 4 1 4 4 5 4 3	Promoting change
Trust - capitalizing on the program name	3 3 2 2 4 2 2 1 2 1	Disagreement with program criteria
Pushing the envelope - product efficiency and affordability	5 3 2 2 4 2 3 2 2 2	Standard code built home
Operational/logistic efficiencies	3 2 2 2 4 2 4 2 2 3	Administrative activity
Important to my decision to participate	5 3 1 1 5 3 3 2 2 1	Less important to my decision to participate
		Obtaining third party certification
		Building corporate culture/identity
		Obtaining publicity
		Accessing Government/CMHC Incentives
		Acquiring technical knowledge
		Responding to suppliers/trades
		Appealing to customers
		Handling competition
		Creating cost efficiencies for your organization
		Pre-empting/ influencing government legislation (e.g. building code changes)

Appendix F – Repertory Grid Pilot Study Interview 2

Display BCG Pilot Study 2 - TG											
My firm's focus	5	3	2	2	3	1	3	1	1	1	Overall industry focus
Differentiates the company	5	5	1	2	5	3	3	1	2	2	Doesn't set the company apart - no impact
Primary impact - main benefit	5	5	1	2	5	3	4	1	2	2	Incidental (side) effect - bonus benefit
Marketing aspect	3	5	1	2	5	5	2	1	3	2	Operational aspect
Longer term focus	4	3	1	1	3	2	4	2	2	4	Shorter term focus
Revenue focus - making money side	3	5	1	2	3	4	4	1	3	2	Cost focus
Raises public awareness - informs the consumer	3	5	3	2	3	2	3	2	2	2	Little public awareness
Improves the overall standard of the industry (make everyone better)	1	5	2	2	3	2	3	2	2	2	Industry regresses
Legitimacy - real changes/improvement - reality	3	3	4	4	3	2	2	4	2	2	Greenwash - popular what people what to see - perception
Important to my decision to participate	4	5	1	2	5	3	3	1	2	1	Less important to my decision to participate
											Obtaining third party certification
											Building corporate culture/identity
											Obtaining publicity
											Accessing Government/CMHC Incentives
											Acquiring technical knowledge
											Responding to suppliers/trades
											Appealing to customers
											Handling competition
											Creating cost efficiencies for your organization
											Pre empting/ influencing government legislation (e.g. building code changes)

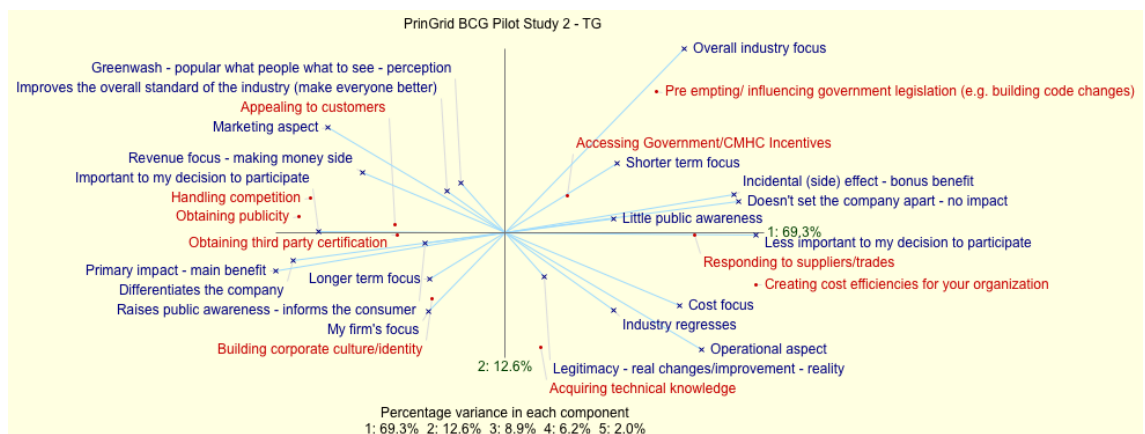
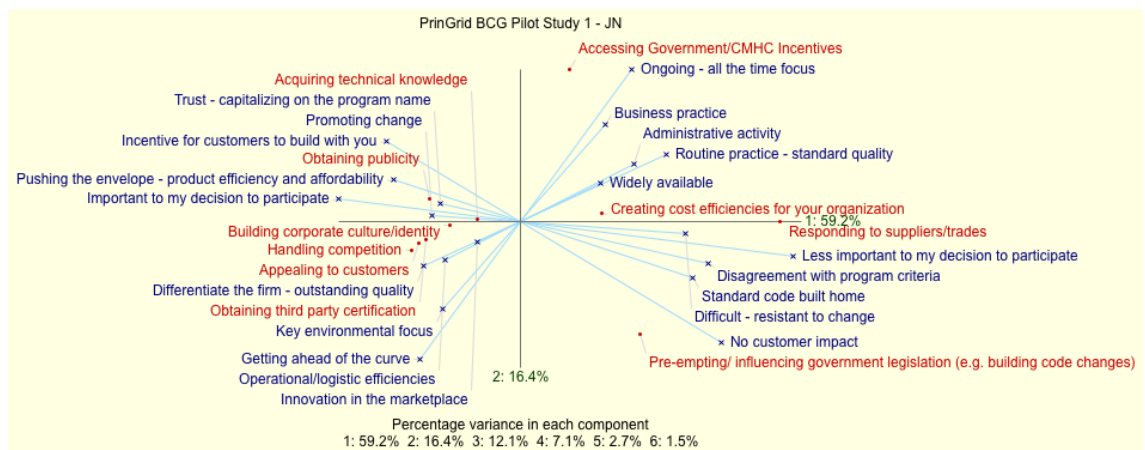
Appendix G – Cluster Analysis Pilot Study Interviews 1 and 2

A cluster analysis is a technique for analyzing the relationships in a grid (Jankowicz, 2004). A cluster analysis indicates patterns of meaning by showing the ways in which the interviewee structured their thinking by the grouping of their constructs (Diaz de Leon and Guild, 2003). The dendrograms for the pilot interviews identify the way in which each decision maker structured their thinking about their decision to participate in the voluntary environmental program.



Appendix H – Principal Component Analysis Pilot Study Interviews 1 and 2

Principal component analysis provides for a measure of cognitive complexity (Diaz de Leon and Guild, 2003; Fransella et al, 2004). A high amount of variance in the first component reflects that relatively few themes dominate the interviewee’s thinking about the topic, while a lower amount of variance on the first component would indicate a higher complexity reflecting an interviewee’s ability to think about a topic in multiply different aspects. The principal component graphs provide data on the percentage of variance for each component along with a visual display of the constructs and elements plotted against the first component (horizontal axis) and the second component (vertical axis). The angle of the lines from each component represents the extent to which the construct or element is represented by the component (Jankowicz, 2004). The length of the lines of the construct or element plotted against the component reflects the amount of variance in the rating (Jankowicz, 2004).



Appendix I – Letter of Support – Built Green Canada



28 February 2012

Dustin Quirk, Instructor
Business Administration & Commerce
Red Deer College
100 College Boulevard
Box 5005
Red Deer, Alberta T4N 5H5

To Whom It May Concern:

Built Green Canada supports a research project being planned by Dustin Quirk that would provide information as to why a builder, or a construction company, would elect to build “green” homes or multi-unit-residential buildings. Mr. Quirk is a business instructor at Red Deer College and has a professional history with CMHC, Alberta Municipal Affairs and Housing, and CHBA-Central Alberta.

The findings from this research project will provide valuable insight into the impact that the BUILT GREEN® Program has had for homebuilders in terms of strategic planning processes.

To that end, we encourage your participation in the interactive interview which will take approximately one hour of your or your designates’ time.

As always, we appreciate your support of the BUILT GREEN® Program.

Sincerely,

A handwritten signature in black ink that reads "Scopithorne".

Sharon Copithorne
Executive Officer

What colour is your future? A vertical green text string "What colour is your future?" followed by a small green recycling symbol.

Built Green Canada,
P.O. Box 5481 Leduc, Alberta T9E 6L7
T. 780-986-6466 Web www.builtgreencanada.ca

Appendix J – Letter of Support – Canadian Home Builders’ Association



Dear Committee:

The Canadian Homebuilders' Association – Central Alberta is pleased to offer its support to Dustin Quirk at Red Deer College for his research in the area of environmentally responsible homebuilding programs for small and medium sized homebuilders in Alberta.

We agree that a better understanding of homebuilder motivations to engage in voluntary environmental programs will help our members and the industry better understand the reasoning and business strategy decision to go "green". We look forward to participating collaboratively with Dustin on this project by helping him access data via promoting his requests for interviews with our members.

We believe that this innovative opportunity will help our association, our members, our industry and our customers expand their knowledge of building "green" as a business strategy.

Sincerely,


Denie Olmstead
Executive Officer
Canadian Home Builders' Association - Central Alberta
P: 403.346.5321
F: 403.342.1301
E: eo@chbcentralalberta.ca

Appendix K – Summary of Annual Percentage of New Homes Built that are Certified with Built Green Canada to Determine Active or Passive Status

Active/Passive Status	Interview Number	Percent Certified
Active	4	100%
	6	100%
	7	100%
	8	100%
	9	100%
	10	100%
	12	100%
	13	100%
	18	100%
	23	100%
	24	100%
	29	100%
	32	100%
	21	90%
	3	70%
	1	60%
	Passive	31
2		10%
26		4%
17		3%
19		3%
20		3%
11		1%
5		0%
14		0%
15		0%
16		0%
22		0%
25		0%
27		0%
28	0%	
30	0%	

← Largest break in the data – used as the threshold for Active/Passive status

Appendix L – Content Analysis Inter-rater Reliability Table – First Attempt

Content Analysis Inter-rater Reliability Assessment - First Attempt		Cross Tabulation of Ratings																				
Interviewer	Collaborator																					Totals
		19	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
		marketing	management style	innovation, leadership, creativity	control	differentiation of product	long vs. short term	profit motive	quality control	integrity/CSR	influencers on decisions	buy in to environment	company image	Sub-total of similar categories	decision making	range of outcomes	performance management	impact on environment	industry players	misc.		
1	1													21	2							28
2	4		16											17								22
3	1			14										17								19
4	4				13									15								17
5	4					11								15								15
6	4						8							8								9
7	2							6						9								9
8	1					3								14								18
9	1													8								11
10	5													17								21
11	1													13								16
12	1													12								14
13	34		20	14	13	15	8	12	9	16	14	12	9	176								
14	2		2					1						3								12
15	1			2		1								1								12
16	1													1								9
17	1													1								9
18	3													2								3
19	1													3								3
20	1													1								8
Totals	36	26	22	14	16	16	8	16	11	19	18	18	11	13	5	10	3	4	15	3	6	265
Percent Agreement Score (All constructs - Index A)																						41.1%
Percent Agreement Score (Similar Categories - Index B)																						61.9%
Cohen's Kappa																						0.58
Perreault-Leigh Index																						0.73
Perreault-Leigh Index 95% Confidence Interval																						0.66 to 0.79

Appendix M – Content Analysis Inter-rater Reliability Table – Second Attempt

Content Analysis Interrater Reliability Assessment - Second Attempt																
Cross Tabulation of Ratings																
	Collaborator															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Totals
Interviewer	1 Marketing	27														27
	2 Communication/Education		22													22
	3 Innovation/industry leadership			27												27
	4 Control (internal/external)				20											20
	5 Differentiation/competitive advantage					25										25
	6 Time horizon (short vs. long)						8									8
	7 Profit (cost/revenue drivers)							10								10
	8 Product quality								16							16
	9 Environmental impact									10						10
	10 Legitimacy/authenticity/integrity										20					20
	11 Identity and image											18				18
	12 Customer engagement												1			1
	13 Management/Decision making			1										21		21
	14 Company View														6	6
	15 Miscellaneous															1
	Totals	27	22	28	20	8	11	21	10	20	18	26	21	6	1	265
	Percent Agreement Score			96.2%												
	Cohen's Kappa			0.96												
	Perreault-Leigh Index			0.94												
	Perreault-Leigh Index 95% Confidence Interval			0.92 to 0.97												

Appendix N – Content Analysis Table

Column Heading Key	
Category (Count, Percent)	The category is the theme or categorization of the constructs from the core-categorization procedure. The count is the number of constructs in this category, and the percent is the percentage of constructs out of the total 265 elicited constructs.
Code	The code is the interview number followed by construct's number (e.g. 10.6 is the sixth construct from the tenth interview).
Construct	The construct is the elicited construct from the RGT interviews.
Percent Similarity Score	The percent similarity score or percent matching score involves computing the sum of differences for each element rating between each elicited construct and the supplied overall construct (e.g. how closely the construct matches the supplied overall construct).
H-I-L Value	The H-I-L Value is the High-Intermediate-Low value from Honey's (1979) technique using percent similarity scores to divide constructs into thirds for each interview.

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
Innovation/ industry leadership (27, 10.2%)	1.3	leader on environmental fronts ⇔ status quo (standard construction)	75	H
	13.2	doing new things (viewed as innovator) ⇔ old way (bare minimum)	75	H
	9.6	leader in industry (align with vision, corporate beliefs/values, who we are) ⇔ being a follower (being like everybody else)	70	H
	18.1	trying to do things beforehand ⇔ being behind the times	70	H
	29.4	leader/innovator (too far ahead) ⇔ followers	70	H
	27.8	new ways of doing things (new opportunities) ⇔ not taking advantage of new developments (products/techniques)	65	H
	3.2	leadership in industry (more environmentally responsible) ⇔ status quo (way we always did it)	65	I

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value	
	14.3	cautious constant improvement (home quality methods) ⇔	bleeding edge (jumping on band wagon, lack of testing of products)	55	I
	24.2	reactive (caught with pants down) ⇔	proactive (taking courses, seeing other areas, be the 1st one)	50	H
	24.3	follower (lagging, do because others do) ⇔	leader (known for it, setting the tone)	50	H
	23.1	proactive (ahead of the norm, a better way) ⇔	reactive (not aware, cheapest option)	50	I
	28.7	followers (just building what the customer wants) ⇔	innovators (net zero builders)	50	I
	3.5	innovation (clever ways to build) ⇔	code built (minimum standards)	50	L
	8.6	industry view (lead the industry, make the industry better) ⇔	adhere to codes (code built home)	45	I
	17.4	leader in the industry (try new things, shiny new) ⇔	playing catch up (one step behind)	45	I
	21.1	leaders of the industry (AAA builders) ⇔	willy nilly builder (truck and ladder builder)	45	I
	6.1	leader in the industry (make industry better) ⇔	follower (status quo)	40	I
	13.8	improve the industry (competition catches up so I can do more) ⇔	industry makes no changes	40	I
	17.2	proactive (being prepared for changes) ⇔	reactive (responding to changes)	40	I
	17.5	better way to build (innovate, try to improve) ⇔	refining existing standards	40	I
	19.5	forefront of industry (involved in the industry) ⇔	follower (do whatever comes up)	40	L
	11.5	proactive (in the public eye) ⇔	reactive (responding to the customer)	30	H
	30.4	the way out there builders (bleeding edge, net zero) ⇔	typical standard home (code built, tract builder)	30	I
	32.6	proactive (doing it ahead of time) ⇔	reactive (waiting for change)	30	I
	10.1	proactive approach (influence industry/government) ⇔	result of building with energy efficiency products	30	L
	7.6	revolutionize industry (being a leader) ⇔	doing the minimum	25	L
	16.2	proactive behaviours (more positive) ⇔	reactive nature (negative undertone)	25	L

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
Marketing and Sales (27, 10.2%)	10.6	marketing (fulfilling demand/need, above and beyond) ⇔ meeting the basics	85	H
	1.2	marketing (promotion tool, media attention) ⇔ administrative side of the business	80	H
	3.3	sales side (external focus) ⇔ administrative (overhead, internal)	70	H
	20.3	technical aspect ⇔ marketing program (sales aspect)	65	H
	25.1	marketing and sales (convincing your customers, expertise) ⇔ building the home (project management	65	H
	28.5	marketing (dealing with the market) ⇔ government (regulators)	60	H
	5.8	marketing (cost side - spending money to attract customers) ⇔ reputation (draws customers in without spending)	55	H
	6.4	building it right (building it for the future) ⇔ marketing (curb appeal)	55	H
	2.3	marketing (the brand, using the logos, feather in cap) ⇔ office and administrative side	50	H
	4.3	marketing (perception of the process of design to build) ⇔ bottom line (maximizing profit)	50	I
	14.4	marketing (sales aspect) ⇔ operations (actually building the home)	50	L
	21.2	marketing tool (selling the home) ⇔ building the home	45	I
	22.4	stimulate interest (sales aspect) ⇔ product and the knowledge to run the business	45	I
	30.1	marketing (selling the home) ⇔ technical aspect (design, engineering, building technology)	45	I
	16.4	marketing (drawing positive attention to the company, interest in product, paint on the car) ⇔ technical/mechanical aspects of building home (engine in the car)	40	I
	10.3	sales focus (creating a reason why clients build with us) ⇔ technical building aspect	35	I
	26.3	marketing and sales ⇔ actually building an energy efficient house	35	I
	19.7	sales or marketing side ⇔ technical side to building (constructing the home)	35	L
	27.5	building experience (process of building the house) ⇔ marketing and sales (reputation and word of mouth, referrals)	35	L
	8.2	nuts and bolts (operations) ⇔ marketing (selling the home)	30	L

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
	9.8	marketing perspective ⇔ pricing side (cost effectiveness)	30	L
	12.10	sales focus (aesthetic focus, how house looks) ⇔ technical (how the house is built)	30	L
	31.2	technical aspect (builder organization) ⇔ selling tool (marketing aspects, sales organization)	25	I
	18.7	marketing (appealing to customers, good name) ⇔ operational aspects (how we build)	20	L
	24.1	processes we have to follow ⇔ marketing standpoint (SWOT)	20	L
	32.4	marketing element (selling to the customer) ⇔ construction of the home	20	L
	15.3	in-house process (operations) ⇔ marketing focus (market driven)	15	L
Differentiation/ competitive advantage (25, 9.4%)	1.4	sets us apart (differentiates, Mercedes Benz) ⇔ volume builder (Ford)	80	H
	10.2	differentiate the firm (proud of sustainable homes) ⇔ mainstream home (standard home)	70	H
	22.8	staying ahead of the competition (leader) ⇔ reacting to the competition (they lead we follow)	70	H
	27.4	custom (never build the same home twice) ⇔ production builder (same house over and over)	65	H
	3.8	differentiates us in the market ⇔ operational or functional aspect	65	I
	17.6	differentiate (diversity in product line) ⇔ cost focus (build so customer can afford)	60	H
	23.10	differentiating (sets us apart from the competition, purple cow) ⇔ status quo (fish in the pond)	60	H
	23.7	pride in business (generating referrals) ⇔ volume focus (build as many as you can)	55	H
	13.4	differentiates your firm (brand loyalty) ⇔ haven't used it or difficult to access	55	I
	27.7	niche in the marketplace (narrow market) ⇔ all things to all people (broad market)	55	I
	29.1	niche market (to be different, product differentiation) ⇔ mainstream builder	50	I
	3.1	competitive advantage (providing what the market wants) ⇔ dumbs down end product (less incentive to be creative)	50	L
	12.1	differentiation strategy (more value, don't buy cheapest inputs on market) ⇔ price strategy (low price)	45	I

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value		
	22.1	how we compete (directly related to competition, market driven)	↔	environment in which you operate (global)	45	I
	25.4	create an advantage in the marketplace (expertise, niche, professional)	↔	volume builder (production builder)	45	I
	2.1	competitive elements (ahead of the competition)	↔	internal efficiency	40	H
	7.1	more competitive (gives you an advantage)	↔	ineffective (not cost effective)	40	H
	20.1	something we have always done	↔	staying ahead of the competition	40	I
	5.6	unique (why we do what we do)	↔	what everybody else does	35	L
	4.4	competitive edge (start to finish, better design)	↔	crappy design (cookie cutter home, poorly built)	30	L
	11.1	regulatory aspect (baseline)	↔	competitive aspect (advantages to stay ahead)	25	I
	15.2	standard building practices (what we are doing)	↔	differentiate based on the Energuide sticker	25	I
	8.3	differentiation (makes us unique, selling proposition)	↔	regular industry	20	L
	15.5	production home (minimal changes to product, standard models)	↔	custom homes (one off homes)	20	L
	21.4	one time impact (custom side, one off)	↔	cumulative impact (many builders, many little things, change the spec)	10	L
Management/ Decision making issues (25, 9.4%)	17.1	strategic business reason for doing	↔	operations (fact based)	70	H
	24.4	ignore (they are what they are, no attention)	↔	required to do (can't ignore, attention)	70	H
	18.2	makes sense (applies to us, no brainers)	↔	not feasible (doesn't apply to us)	65	H
	5.2	distraction (nebulous concept)	↔	tangible (day to day operations)	55	H
	30.3	easy to do	↔	difficult to do (time and effort)	55	H
	16.5	main objective of primary importance (food at McDonalds)	↔	secondary objective (added bonus, toy in the Happy Meal)	50	H
	32.10	knowledge based (used to make researched decisions)	↔	emotional decisions	45	H

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
	19.8	time consuming (design elements) ⇔ less time (minimal involvement)	45	I
	24.12	small picture (minute detail, less impactful) ⇔ bigger picture (overall impact, greater good)	40	H
	8.8	easy to achieve (based on where we are) ⇔ hard to do (difficult to achieve)	40	I
	18.4	helps make good decisions (products) ⇔ less value (less information on specs for decisions)	40	I
	1.9	relationship driven (friends in business) ⇔ cost/goods driven	40	L
	1.7	local focus (close to home) ⇔ global focus (sourcing materials, products)	35	L
	15.1	a number of ways to meet the minimums ⇔ doing things our way to meet the requirements	30	H
	24.7	exciting aspects of my job (look forward to) ⇔ boring aspects of my job (mundane)	30	I
	23.8	how we function (input) ⇔ result (output, verification/substantiation after the fact)	30	L
	9.5	black and white (concrete) ⇔ people (behaviours, soft side, shades of grey)	25	L
	12.8	multifaceted aspect (integrates many aspects) ⇔ single focus	25	L
	21.8	outcome or result of the process (public recognition, a stamp on the work) ⇔ business process (working smarter, working in partnership, fine tune the operations)	25	L
	6.5	going in the right direction (win-win) ⇔ verifying the final product (shooting self in foot)	20	L
	11.4	accountable to trades/suppliers ⇔ check system (making sure)	20	L
	11.8	involvement in the industry ⇔ day to day operations	20	L
	24.8	task manager (procedural in nature, like a math problem) ⇔ team manager (comprehensive issues, more in depth, higher level)	20	L
	24.9	rules (black and white) ⇔ people driven (relationship driven)	20	L
	10.5	ongoing improvements and learning about building process ⇔ working within existing processes and programs	10	L
	21.5	customer focus (who I work for) ⇔ trade alliances (they work for me)	75	H

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
Customer engagement (24, 9.1%)	22.5	customer focus (give the customer what they want, flexibility) ⇔ production based (more efficient process, sales to occupancy, less flexible)	70	H
	25.3	customer focus (tool to convince customers) ⇔ internal dollars and sense	70	H
	25.7	what the customer sees (looks for, impression, perception) ⇔ not relevant to the customer (not on their mind)	65	H
	27.9	our customers ⇔ behind the scenes (industry wide)	65	H
	29.6	customer focus ⇔ profit focus	60	H
	16.7	targets an individual (customer/potential customer) ⇔ industry focused	45	H
	4.2	customer biased (better home, last a long time) ⇔ gouging the customer (lipstick)	45	I
	4.5	caring for the customer and the design (right thing) ⇔ getting paid, getting it done	45	I
	8.4	our firm wants (aligns with culture) ⇔ customer/stakeholder wants (market factors)	45	I
	19.3	customer view (interested, green customer, long term home) ⇔ customer just looking for a home (short term home)	45	I
	6.6	technical focus (capabilities/functions) ⇔ customer focus (what the customer wants, perceives they want)	40	I
	2.2	customer focus ⇔ in house (day to day)	35	I
	31.4	customers can see you know what you are doing ⇔ part of our business (partners with the business)	35	I
	11.9	important for customers (buying decisions) ⇔ less consumer focus (not part of the buying decision)	30	H
	17.7	translating so understandable for the customer ⇔ building science (technical aspects, nuts and bolts)	30	L
	20.2	about me as a builder (company focus) ⇔ client or customer expectations	25	I
	25.5	customer benefits directly (saves money) ⇔ broader benefit (good of the world)	25	I
	16.6	important to customers (based on feedback) ⇔ less important to customers (irrelevant to customers)	25	L
	17.8	desire (customer buys on emotion) ⇔ functionality (building performance, well built home)	20	L
	23.3	best decision for the customer ⇔ more for profit or gain	20	L

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value	
	32.1	consumer focus (how consumers see company) ⇔	government focus (decisions/rules of building)	20	L
	30.2	customer perception (builders should do it anyway) ⇔	reality of how the house is built	10	L
	18.8	customer focus (how they decide what to buy) ⇔	internal focus (doesn't matter to customer but matters to us)	0	L
Legitimacy/ authenticity/ integrity (24, 9.1%)	3.7	validation (trust, proves what we are doing) ⇔	efficiency (cost savings)	85	H
	12.2	trust (if we say it, we do it) ⇔	Mike Holmes project house (horror story, trade offs)	80	H
	14.7	provides a level of comfort (done properly, security) ⇔	self-regulated (no one to answer to)	75	H
	9.1	right thing to do (building the rights things the right way) ⇔	building status quo (disregard for natural resources, consumerism, waste)	70	H
	14.8	pride in organization and product quality ⇔	all about the money	65	H
	19.2	validity to the program (realistic) ⇔	too onerous (not worth the value)	65	H
	20.8	quantifiable (scientific methods, legitimizes) ⇔	opinions based on experience	65	H
	10.4	what the company stands for (what we believe in) ⇔	benefit to the client	60	I
	20.7	reality (do what you say, say what you do) ⇔	perception (image, subjectivity)	55	H
	1.8	belief in being better ⇔	good enough (minimum standard)	55	I
	14.1	actual benefit realized ⇔	perceived benefit (unproven)	55	I
	14.5	do the right thing (experience on methods, reduce warranty claims) ⇔	being ignorant of a better way (not knowing)	55	I
	3.6	belief in values (what we stand for) ⇔	available to anyone (base case)	50	L
	4.6	ego (pride in the product) ⇔	not caring about the product (only profit)	45	I
	21.9	legitimizes the business ⇔	unsubstantiated or unverified (can't prove)	45	I
7.2	altruistic (right thing to do, do well by doing good) ⇔	status quo (code built home)	40	H	
23.5	customer perception (the Mike Holmes effect) ⇔	the facts (supporting data, local reality)	40	I	

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
	24.11	perceived value (fluffy stuff, lipstick) ⇔ actual value (meat and potatoes, product quality)	35	I
	5.7	proof of quality ⇔ accessible to everyone	35	L
	6.7	reassurance (reaffirming what we are trying to do) ⇔ projecting an image (appeal to the customer)	35	L
	15.4	someone else justifying the house (legitimate, inspections, 3rd party) ⇔ experience and product that the customer can see (specs)	30	H
	31.3	pride (doing it right, people knowing) ⇔ window dressing (not really green)	25	I
	13.7	legitimacy (actually doing it, altruism) ⇔ greenwash (saying but not doing)	15	L
	31.6	legitimacy (verifies, confirming what we are saying) ⇔ jaded customers (more about money)	15	L
Communication/ Education (22, 8.3%)	3.4	informing the customer (teaching, did you know) ⇔ learning (building systems, product knowledge)	70	H
	14.9	education (to be the best we can be) ⇔ warm body to get the job done	60	H
	21.6	educating the customer (defining expectations) ⇔ information for decision making (what is useful)	60	H
	28.6	education (more work for understanding, trades and suppliers) ⇔ explaining (bringing people up to date, customers)	60	H
	19.4	showing and explaining (pushing) ⇔ back and forth (two way communication)	50	H
	12.4	asking or explaining (one way flow) ⇔ two way communication	50	I
	22.3	buyer provides information (tuned into our buyer, estate market) ⇔ not aware of what the buyer wants (starter market)	45	I
	23.9	educating the sales staff/customer ⇔ marketing gimmick (doing because everyone else is, leveraging the customer)	45	I
	1.6	two way flow of information (sharing knowledge) ⇔ one way flow (telling/explaining)	45	L
	6.2	teaching (telling information) ⇔ sharing information (2 way communication)	40	I
	5.9	educating the customer ⇔ educating our own people (the firm)	40	L
	27.2	educating the client (back and forth) ⇔ advising (one way flow)	40	L
	31.5	telling and educating ⇔ talk back and forth (work together)	35	H

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
	4.8	directing (being picky, instructing) ⇔ sharing knowledge (dialogue)	35	L
	15.7	two way flow of communication (sharing knowledge) ⇔ one way flow (telling about products, informing)	30	H
	30.8	one way builder directing/informing ⇔ two way collaboration	25	I
	2.5	explaining the program/product to customers (pass it on) ⇔ back and forth information exchange	25	L
	23.4	asking questions of partners (back and forth) ⇔ no questions (more mandated, more regulated)	25	L
	13.1	two way communication (back and forth) ⇔ one way promotion of knowledge	20	L
	20.4	sharing of information (dialogue) ⇔ obstinance (resistance to change, always done it that way)	20	L
	29.3	education (teaching about green building, one way) ⇔ two way dialogue (back and forth)	20	L
	32.2	education process (two way) ⇔ explaining (one way)	10	L
Control (internal/external) (20, 7.5%)	4.1	specific to my comapny ⇔ broader industry (impacts everybody)	75	H
	28.3	internal to the company ⇔ external to the company	70	H
	17.3	what we can control with in the company ⇔ market forces (beyond our control, bigger than the company)	60	H
	5.1	external factor for the firm ⇔ internal to the firm	55	H
	21.7	knowing who we are (internal focus) ⇔ member of a group (external focus)	45	I
	28.1	things that I have more control over ⇔ outside of my control (waste of time)	45	L
	9.4	less control over (less impact on costs) ⇔ more control over (reducing waste, financial gain)	35	I
	8.1	internal (selfish perspective) ⇔ external side (outward focus)	30	L
	12.9	internal focus (not shared) ⇔ external focus (exposed)	30	L
	19.6	externally focused (outside the company) ⇔ internal to the company	30	L
	32.8	within our control ⇔ outside of our control	25	I

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
	11.6	internal (what you are) ⇔ external (what you do)	20	L
	16.1	can control (encompasses a company goal/mandate) ⇔ no control (broader influence, conditions, customers)	20	L
	24.10	external (how we present ourselves) ⇔ internal (own policies/manuals, staff expectations)	20	L
	11.7	our company ⇔ outside influences on the organization	15	L
	16.3	externally driven (dealing with customers, image) ⇔ internal driven (policies, culture)	15	L
	24.5	can control (things you can change) ⇔ unable to control (no influence)	15	L
	25.2	external environment ⇔ about the company (inside, internal)	10	L
	20.9	me the builder (good for me) ⇔ industry (the overall industry, good for everyone)	5	L
	32.9	internal to our company ⇔ external/outside the company	5	L
Identity and image (19, 17.2%)	22.6	image of the firm (how public views us, perception, front) ⇔ who we really are (reality)	70	H
	7.3	core reasoning (vision for the company) ⇔ side benefit	65	H
	13.9	public perception (doing the right thing) ⇔ ambivalence (purely financial, bottom line)	65	H
	18.5	image of the company ⇔ up to the customer (not part of process)	55	H
	12.5	strengthens who we are ⇔ limited exposure	55	I
	6.3	identity (who we are, right thing to do) ⇔ encouragement (day to day activity, something we do)	50	H
	9.3	recognition (being identified as socially responsible) ⇔ financial gain/benefit (incentive driver, added benefit)	50	H
	5.3	corporate image (see ourselves) ⇔ political image (government)	50	I
	16.10	superficial (less substantial traits, facade) ⇔ genuine (built with quality)	45	H
	5.5	positive image to the customer ⇔ not on the customers agenda	45	I
	12.7	perception (externally what people think you do) ⇔ reality (what do we think we do)	45	I

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
	9.2	internal view of the company (more objective) ⇔ the outside view of the company (more subjective)	40	I
	27.6	who we are (core to business) ⇔ small part of our business	40	L
	11.3	identity of company (culture) ⇔ reward/bonus of doing the program	35	H
	17.9	image of the company (story we tell) ⇔ the real story (standards to perform to)	30	L
	2.4	legitimizes company (professionalizes) ⇔ back of pick-up truck builder (fly by night)	25	L
	11.2	building of the house (technical aspects) ⇔ public side (image of the builder)	20	L
	20.5	what we actually do (internally) ⇔ public face of the company	20	L
	30.5	professional builder (care about the customer) ⇔ get rich quick (flippers, all about the money)	10	L
Product quality/ energy efficiency (17, 6.4%)	13.3	out in front (behind the paint - can't see it, but its better) ⇔ standard code built home	75	H
	12.3	exceed code by 24% or better on energy efficiency ⇔ lowest level building code	60	H
	19.1	to be better than (exceeding code or competition) ⇔ to meet the minimum (be equal to)	60	H
	4.10	building a better home ⇔ limitations on cost, time or client says good enough	55	H
	23.6	the best (building practices and products) ⇔ minimum (just meeting code)	55	H
	29.2	better built home (higher level of performance) ⇔ average home (code built home)	55	I
	22.7	where the buyer puts the emphasis (luxury items) ⇔ how we build (what we feel is a good product, behind the walls)	50	I
	27.3	bones (good envelope and mechanicals, customer doesn't see) ⇔ pretty stuff (what people notice)	50	I
	31.1	we were already doing this (way better) ⇔ code built home (what other builders do)	40	H
	28.2	product (house specifications, features) ⇔ customer request (what the customer is interested in)	40	L
	32.5	better built homes ⇔ home built to code	30	I
	14.6	performance quality aspect ⇔ shiny looks good (aesthetics)	30	L
	23.2	costs up front (better products/processes) ⇔ costs on service/warranty side (fixing after)	30	L

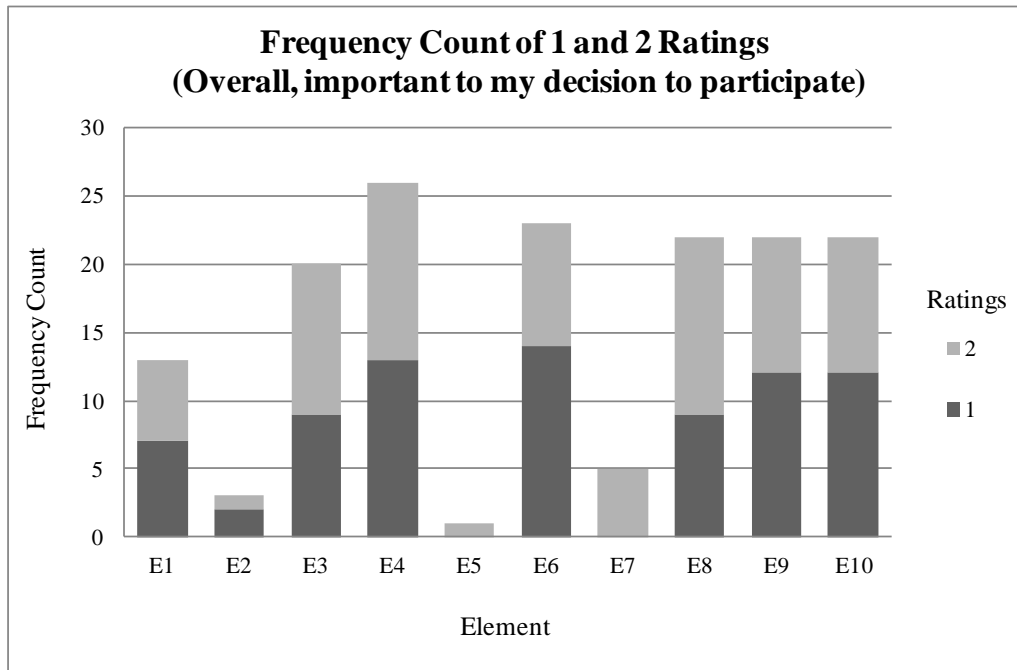
Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
	15.6	minimum code ⇔ actual built (exceeding the code)	25	I
	26.2	real function (higher efficiency and performance) ⇔ fluff (no performance gain, doesn't do anything)	20	L
	29.7	truly environmental (additional energy efficiency) ⇔ finished that look good (granite counters)	20	L
	20.6	best practices (R2000, Smart Moisture, Energuide) ⇔ minimum building codes (quality/standards)	10	L
Environmental impact (10, 3.8%)	10.8	authentic green building (verified/trust) ⇔ greenwash (just for the sale/marketing ploy)	65	H
	8.5	nice to do (good for the environment) ⇔ financial gain (bottom line)	60	H
	26.1	doing the right thing for the environment ⇔ standard code built home	50	H
	32.7	right thing to do for the environment (benefits customer) ⇔ just making money	45	H
	5.10	real environmental benefits ⇔ greenwash (misinformation)	45	I
	32.3	environmental value for the consumer ⇔ greenwash (does not meet expectations)	35	H
	9.7	acting the part (being inherently green, ethical, responsible, authentic) ⇔ greenwash (right thing to say, taking advantage)	35	I
	21.3	spirit of helping earth (green earth) ⇔ smoke and mirrors (green money)	25	L
	10.7	personal/corporate fulfillment (believing in what we do, better for environment) ⇔ landing sales (better for bottom line)	20	L
	30.6	good for the environment (worthwhile) ⇔ minimal impact on the environment (fluff)	10	L
Profit (cost/revenue drivers) (10, 3.8%)	30.7	revenue side (generating money) ⇔ cost side (how much the customer has to spend)	65	H
	28.4	efficiencies in costing and product ⇔ more process (more time and cost)	60	H
	8.9	costly (investment of time/money by the firm) ⇔ inexpensive (few resources required to achieve)	55	H
	8.7	efficiencies (eliminate waste, transportation, duplication) ⇔ doing to get it done (way we have always have done it)	50	H
	13.6	ongoing monthly carrying costs (embedded costs, value builder) ⇔ sticker price of home (price point, low cost of home)	50	I
	18.3	price point (being able to sell) ⇔ cost side (some items are really expensive)	45	I

Category (Count, Percent)	Code	Constructs	Percent Similarity Score	H-I-L Value
	5.4	expense side ⇔ revenue side (bottom line to budget)	40	L
	24.6	able to cost recover via price ⇔ can't cost recover (done for reasons other than profit)	25	I
	7.5	good for business (growth) ⇔ hinder growth	20	L
	15.8	company focus (how well we do, sales) ⇔ customer focus (what's in it for the customer)	15	L
Time horizon (short vs. long) (8, 3.0%)	1.1	immediate issues (clients looking now) ⇔ longer term (2-3 years out)	70	I
	16.8	day to day activities (myopic view, 1 to 2 years out) ⇔ long term outlook (10 to 20 years out)	65	H
	4.9	right now (continuation of what we do) ⇔ builds over time	50	H
	18.6	longer term goal ⇔ day to day aspects (building the home)	50	I
	14.2	doing it now (short term) ⇔ not there yet (in the future)	50	L
	27.1	short term (1-2 years) ⇔ longer term (in 10+ years)	40	L
	7.4	short term (where we are today) ⇔ longer term (big hairy audacious goals)	30	I
	13.5	short term (more immediate) ⇔ long term (future generations)	25	L
Company View (6, 2.3%)	12.6	good for business (everyone benefits) ⇔ benefit to one side only	60	H
	1.5	helps us (what we do) ⇔ helps industry (higher standard for minimums)	55	I
	16.9	company's infrastructure (pillar of company, personality/mind, makes company stronger) ⇔ outward view (actions, limbs)	35	I
	29.5	company view (Green Built builders, minority) ⇔ industry view (majority of builders)	35	L
	22.2	impacts the whole industry (whole industry moves) ⇔ just build it our way (impacts our firm)	30	L
	25.6	primary focus (stays with the company) ⇔ added benefit (stays with the house)	10	L
Miscellaneous (1, 0.38%)	4.7	directly related to what I try to do ⇔ side benefit (not a primary driver)	75	H

Appendix O – Summary of Ratings on the Overall Supplied Construct (Importance to Decision to Participate)

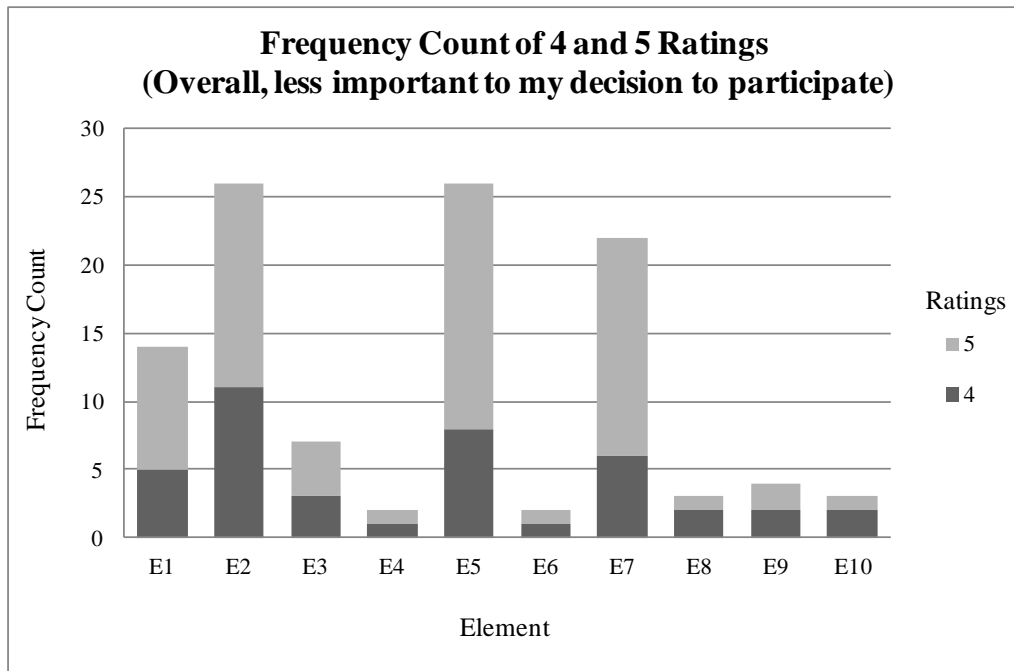
The following two charts present a summary of the ratings on the overall supplied construct (Honey’s 1979 Technique) that asked interviewees to rate the overall importance of each of the supplied elements (drivers/pressures to participate).

This first chart presents the frequency counts of the 1 and 2 rating scores for the elements (high importance).



Elements	
E1	Pre-empting/ influencing government legislation (e.g. building code changes)
E2	Creating cost efficiencies for your organization
E3	Handling competition
E4	Appealing to customers
E5	Responding to suppliers/trades
E6	Acquiring technical knowledge
E7	Accessing Government/CMHC Incentives
E8	Obtaining publicity
E9	Building corporate culture/identity
E10	Obtaining third party certification

This second chart presents the frequency counts of the 4 and 5 rating scores for the elements (low importance).



Elements	
E1	Pre-empting/ influencing government legislation (e.g. building code changes)
E2	Creating cost efficiencies for your organization
E3	Handling competition
E4	Appealing to customers
E5	Responding to suppliers/trades
E6	Acquiring technical knowledge
E7	Accessing Government/CMHC Incentives
E8	Obtaining publicity
E9	Building corporate culture/identity
E10	Obtaining third party certification